ORDER NO. VSD9505M258
D9

Service Manual

Operating Instructions
Mechanical Adjustment Procedures
Electronical Adjustment Procedures
Block Diagrams
Schematic Diagrams
Circuit Board Diagrams
Exploded Views
Replacement Parts List

Panasonic S-VHS
Professional/Industrial Video

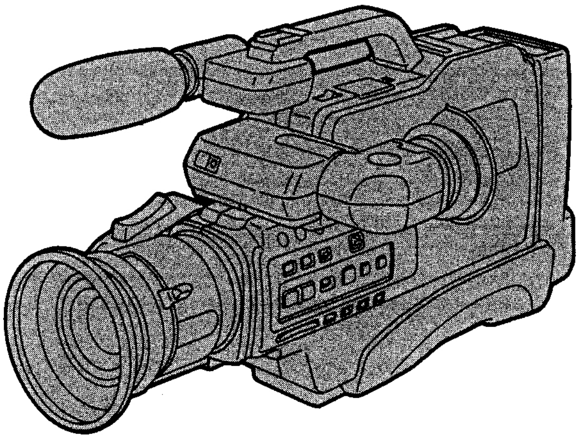
Hi-Fi

S-VHS Movie

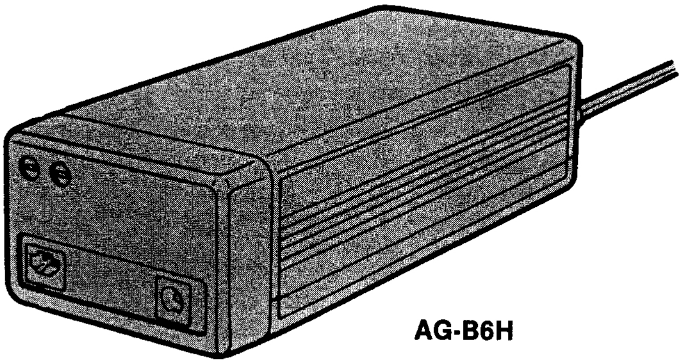
AG-456UP

AC Adaptor

AG-B6H



AG-456



AG-B6H

PRO LINE VHS REPORTER

Panasonic®

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advice non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service manual by anyone else could result in serious injury or

INTRODUCTION

This Service Manual contains all the technical information which allow service personnels to understand and service the Panasonic S-VHS Movie Model AG-456.
The AG-456 has many special features as described later. Added to the basic S-VHS format, these features make the AG-456 an ideal unit for business, eduction, entertainment, sales and training spplications.

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SECTION 2. MAINTENANCE & ADJUSTMENT PROCEDURES

SECTION 3. BLOCK DIAGRAMS

SECTION 4. SCHEMATIC DIAGRAMS

SECTION 5. EXPLODED VIEWS & REPLACEMENT PARTS LIST

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL !

Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

"THE LITHIUM BATTERY IS A CRITICAL COMPONENT (TYPE NUMBER VL2020 MANUFACTURED BY PANASONIC).

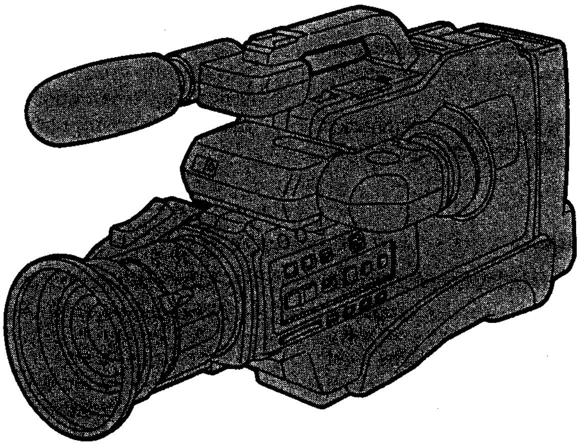
IT MUST NEVER BE SUBJECTED TO EXCESSIVE HEAT OR DISCHARGE. IT MUST THEREFORE ONLY BE FITTED IN EQUIPMENT DESIGNED SPECIFICALLY FOR ITS USE.

REPLACEMENT BATTERIES MUST BE OF THE SAME TYPE AND MANUFACTURER. THEY MUST BE FITTED IN THE SAME MANNER AND LOCATION AS THE ORIGINAL BATTERY. WITH THE CORRECT POLARITY CONNECTIONS OBSERVED.

DO NOT ATTEMPTTO RE-CHARGE THE OLD BATTERY OR RE-USE IT FOR ANY OTHER PURPOSE. IT SHOULD BE DISPOSED OF IN WASTE PRODUCTS DESTINED FOR BURIAL RATHER THAN INCINERATION."

S-VHS Movie

AG-456UP



SPECIFICATIONS

ITEM	SPECIFICATION
Power	Source : BATTERY; DC12V Consumption; Recording mode; 9.8W (Battery operation)
VIDEO RECORDING SYSTEM	4 rotary heads, helical scanning system NTSC
TAPE FORMAT	S-VHS/ VHS Cassette Tape (Tape width 12.7mm)
TAPE SPEED	33.35mm/ s Record/ Playback Time 180min. with NV-E180 FF/ REW Time less than 12min. with NV-E180
CAMERA	PICK-UP ELEMENT: CCD (Charge Coupled Device)
	STANDARD ILLUMINATION: 1,400 lux
	MINIMUM REQUIRED ILLUMINATION: 3lux (Normal Mode) 1lux (Digital Gain Mode)
	LENS: 12: 1 Power Zoom Lens with 2 zooming speeds and Digital AI Auto Focus; Focal Length 5.6-67mm F1.6 Auto Iris/ Manual Ilis Filter Diameter 49mm
	IMAGE SENSOR: 1/3 inch CCD Image Sensor
	VIEW FINDER: 0.7" Electric View Finder

ITEM	SPECIFICATION
VIDEO	HEADS: 4 rotary heads, 1 flying erase head
	OUTPUT: PHONE CONNECTOR; 1.0Vp-p 75Ω unbalanced S-VIDEO OUT Terminal; 1.0Vp-p 75Ω unbalanced
AUDIO	HEAD: 1 Stationary head (Normal Audio) 4 rotary heads; 2 cahnnels (Hi-Fi Sound-Stereo)
	INPUT: MIC IN (M3); -70dB, 600Ω or more unbalanced
	OUTPUT: PHONE CONNECTOR; -8dB, 600Ω unbalanced
WEIGHT	Approx. 5.95lbs. (2.7kg) (without Battery Pack) 5-1/8" (W) ×9-5/8" (D)
DIMENSIONS	130 (W) × 245 (H) ×476 (D) mm
STANDARD ACCESSORIES	1 pc. AC Adaptor 1 pc. Battery Pack 1 pc. Shoulder Strap 1 pc. AV Output Cable 1 pc. DC Input Cable 1 pc. Battery Pack Charging Connector 1 pc. S-Video Cable

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing observe the original lead dress. If a short circuit is found, replac all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protectiv devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs onthe plug.
2. Measur the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet parton the equipment such as screwhead connectors, contrl shafts, etc. When the exposed metallic part has a return path to the chassis, the reading shoulb be between 1MΩ and 5.2MΩ.
   When the exposed metal dose not have a return path to the chassis, the reading must be ∞.

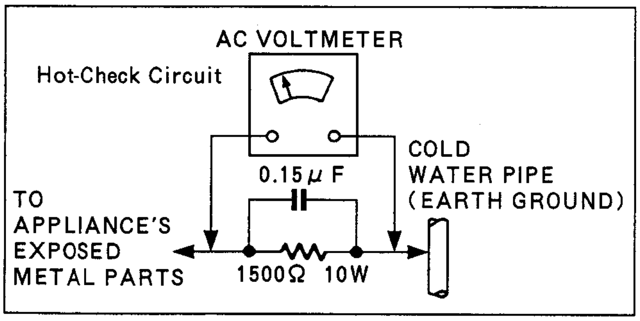


Figure 1

LEAKAGE CURRENT HOT CHECK (See Figure 1)

1. Plug the AC cord directly into the AC outlet.
   Do not use an isolation transformer for this check.
2. Connect a 1.5KΩ, 10W resistor, inparallel with 0.15μF capacitor, between each exposed metallic part on the set an a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measur the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possiblity of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

ELECTROSTATICALLY SENSITIVE(ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground.
   Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package untilimmediately before you are ready to install it. (most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all otner asfety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devoces. (Otherwise harmless mother such as the brushing together of your clothes fabric or the lifting of your foor from a carpeted floor can generate static electricity sufficient to damage an ES device).

Technical Information

Service caution

1-1. Service Extension Cables

Use the following extension cables when checking or adjusting the individual circuit boards.

	PART NBR	PART NAME	CONNECTION	Q'TY
1	VFK0667	30 PIN EXTENSION CABLE	MAIN C.B.A. B3001~PROCESS C.B.A. B302	1
2	VFK0724	32 PIN EXTENSION CABLE	SENSOR C.B.A. B201~PROCESS C.B.A. B301	1
3	VFK0783	12 PIN EXTENSION CABLE	CCD UNIT~SENSOR C.B.A. B202	1
4	VFK0802	24 PIN FLAT CABLE	LENS UNIT~PROCESS C.B.A. FP701	1
5	VFK0823	6 PIN FLAT CABLE	PROCESS C.B.A. FP301~CAMERA OPERATION C.B.A. FP6701	1

How to use extension cables.

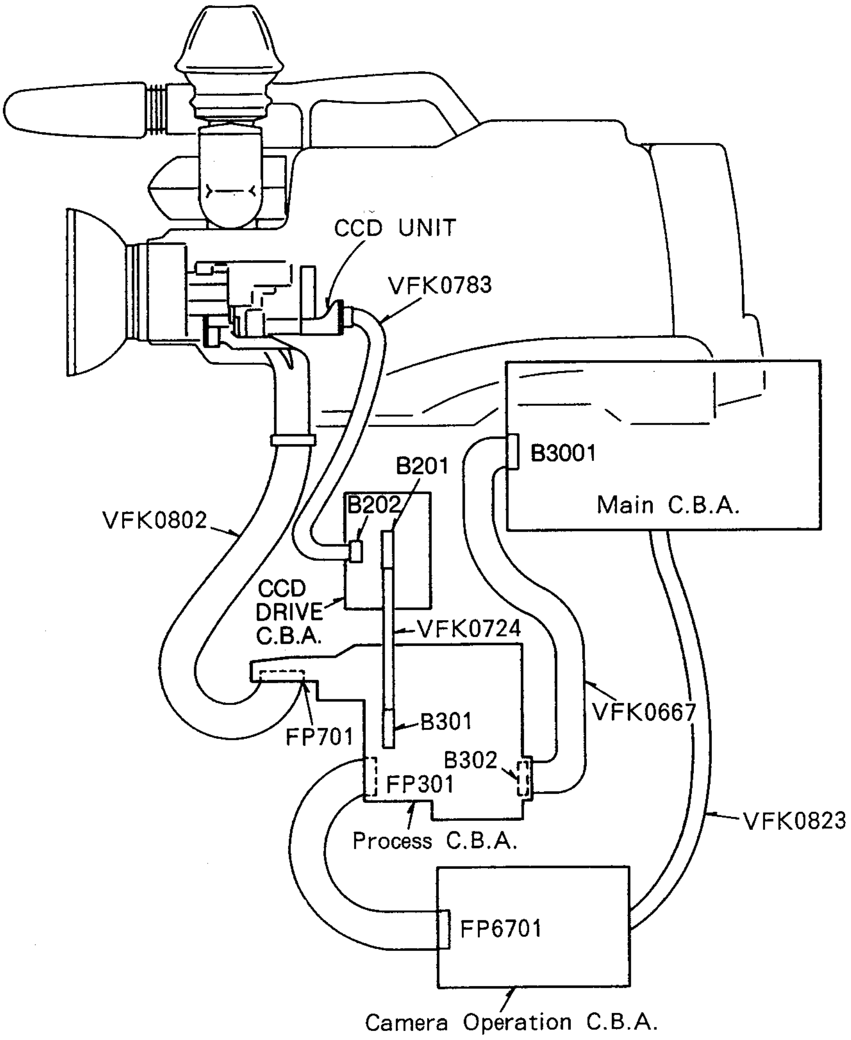
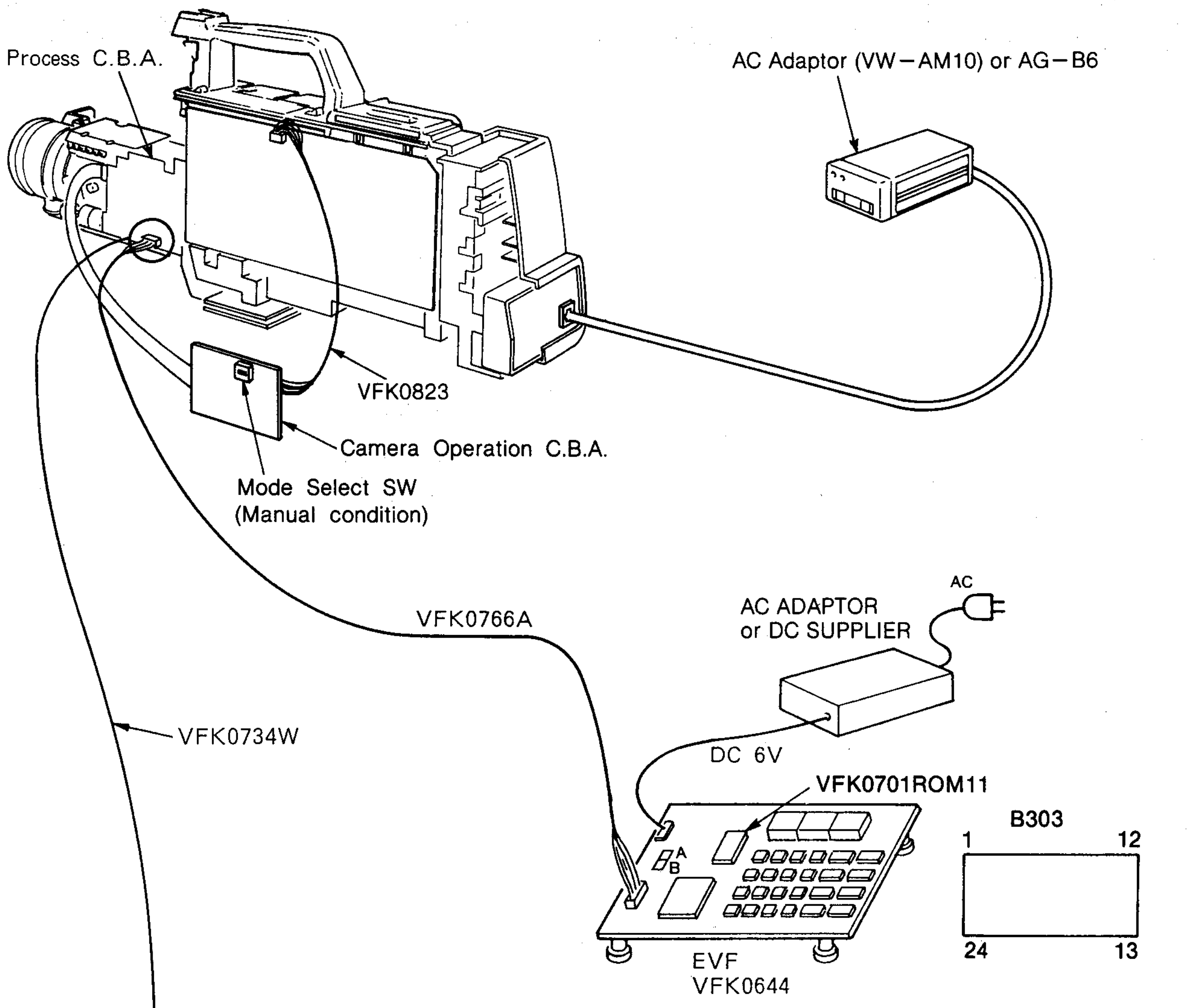
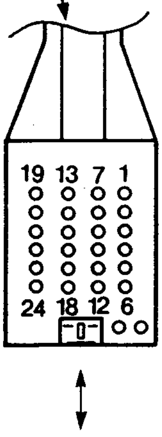

CCD UNIT
VFK0783
B201
B3001
B202
Main C.B.A.
VFK0802
CCD
DRIVE
C.B.A.
VFK0724
B301
VFK0667
FP701
B302
FP301
VFK0823
Process C.B.A.
FP6701
Camera Operation C.B.A.

Fig.T1-(a)


Process C.B.A.
AC Adaptor (VW−AM10) or AG−B6
VFK0823
Camera Operation C.B.A.
Mode Select SW
(Manual condition)
VFK0766A
AC
AC ADAPTOR
or DC SUPPLIER
VFK0734W
DC 6V
VFK0701ROM11
A
B
B303
1
12
24
13
EVF
VFK0644

PIN ARRANGEMENT OF B303

1	CAMERA CLOCK
2	SID
3	VD
4	Y SIGNAL
5	CDS OUT
6	A/D IN
7	Vref H
8	Vref T
9	OP2
10	WIDE
11	IRIS OPEN
12	FH2B
13	GND
14	5V
15	TELE
16	Z.ENC
17	Vref−T
18	Vref−L
19	SUB
20	AGC IN
21	AF CLOCK
22	AF DATA
23	CAMERA TEST
24	GND


19 13 7 1
24 18 12 6

Connect the VFK0766A

Note:
VFK0734 is 24 PIN connection cable for Measurement
Pin Arrangement of VFK0734W is same as B303.

Fig.T1−(b)

1–2. New ROM IC for EVR fixture.

We are pleased to introduce the new ROM IC (VFK0701ROM11) for EVR fixture that we developed to adjust this movie camera.
This ROM IC will provide you with many superior futures as automatic calculation of auto white balance and/or colour reproduction and more.

We are also pleased to introduce the new connecting cables (VFK0766A & VFK0734W) for this Movie Camera and EVR Fixture (VFK0644).

Connections between this Movie Camera and EVR fixture are soloderless when using the VFK0766A and VFK0734W.
Please refer to Fig.T1–(b) for how to use these cables.

ROM NUMBER & availablity	**Applicable models & Function**	**PART NUMBER OF EVR CONNECTION CABLE**
VFK0701ROM1 **available**	**NV-MS70/NV-M810/NV-S1/NV-S100 (PAL & NTSC)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0769**
VFK0701ROM2 **available**	**NV-S5/NV-S500 (PAL & NTSC)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0730**
VFK0701ROM3 **available**	**NV-G1/G2/G3 (G100/G200/G300) & NV-MS95/MS950 (PAL ONLY)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0699**
VFK0701ROM4 **available**	**NV-S7/S9 (NTSC ONLY)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0766A**
VFK0701ROM5 **available**	**NV-S7/NV-S700/G220/G202/G101/G120 (PAL ONLY)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0766A & VFK0734W** **(NV-S7/S700)** **VFK0699** **(NV-G220/G202/G101/G120)**
VFK0701ROM6 **available**	**NV-T1 (NTSC ONLY)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0766A & VFK0734W**
VFK0701ROM7 **available**	**NV-M40/NV-M3000/NV-M3300 (PAL ONLY)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0766A & VFK0734W**
VFK0701ROM8 **available**	**NV-S6/S600/S8/S800 (PAL ONLY)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0766A & VFK0734W**
VFK0701ROM9 **available**	**NV-S77/S99 (NTSC ONLY)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0766A & VFK0734W**
VFK0701ROM10 **available**	**NV-MS4/NV-M9000/NV-M9900 (PAL ONLY)** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0766A & VFK0734W**
VFK0701ROM11 **available**	**NV-G220/M40/MS4/AG-195/NV-M3000/NV-M9000/AG-455 (NTSC ONLY)/AG-456** **① General Adjustment for Camera unit** **② Automatic Calculation for AWB & Colour Reproduction** **③ Average Data Automatic rewriting**	**VFK0766A & VFK0734W** **(Except NV-G220)** **VFK0699** **(NV-G220)**

Fig. T2

2. Self–diagnostic system and service mode

2–1. General

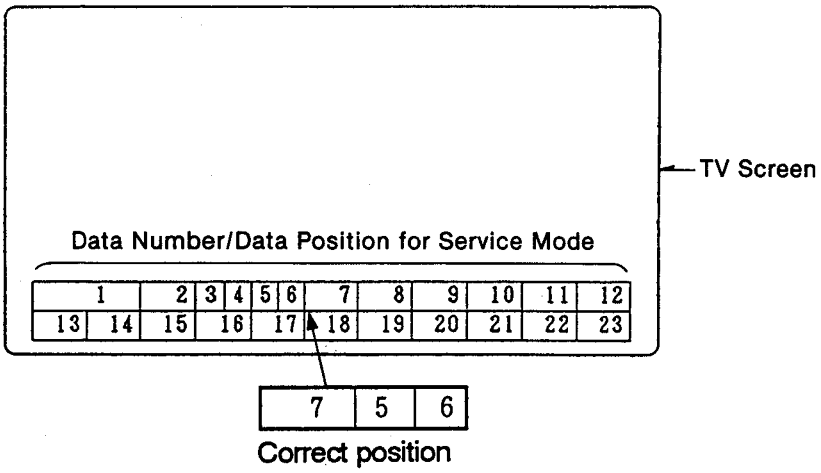
This Movie camera has a self–diagnostic system which faclitates quick trouble shooting.
Pressing the START/STOP Switch and Memory switch simultaneously, same time turn on the Power Switch, After that, unit into Service mode.

2–2. Service Mode

This Movie camera is possible to see RAM data of IC6004 on the TV screen or EVF.
How to read the RAM data is shown in Fig.T3.
All data is displayed in the Hexadecimal Number. (letters and number 0 or F)

Note:

Pressing the START/STOP Switch and Memory switch simultaneously, same time turn on the power switch.
After that this Movie camera Shows data 1 to data 23 on TV screen as shown in Fig.T3–T11.



DATA NUMBER	DATA CONTENTS
1	Data Number 1 is position that indicates Motor conditions data
2~4	Not used
5	Data Number 5 is position that indicates Mechanism positions data
6	Data Number 6 is position that indicates tape condition
7	Data Number 7 is position that indicates key operation informations
8	Data Number 8 is position that indicates I/O condition of IC6004 PIN 118~PIN 125
9	Data Number 9 is position that indicates I/O condition of IC6004 PIN 7~PIN 14
10	Data Number 10 is position that indicates I/O condition of IC6004 PIN 29~PIN 37
11~12	Data Number 11~12 are position that indicates Battery Voltage level
13~14	Not used
15	Not used
16~23	Not used

Fig. T3

2–3. Detail of Data for Service Mode

(1) Data Number 1:
If Data 1 indicate "CYL", There is possibility that cylinder Motor is locked up.

INDICATION AT POSITION 1	CONDITION OF MOTOR
TRL	REEL is locked up
UNLD	Unloading condition
LOAD	Loading condition
CYL	Cylinder Motor is locked up

Fig. T4

(2) Data Number 5:
If Data 5 indicate "01", Mechanism is Eject position.

INDICATION AT POSITION 5	MECHANISM CONDITION
1	EJECT
2	EJECT
3	STOP
4	----
5	S-LOAD
6	----
7	PRE-PAUSE
8	----
9	PAUSE
A	----
B	REVIEW
C	----
D	PLAY

Fig. T5

(3) Data Number 6:
If Data 6 indicate "A", There is possibility that sensor detect the tape end.

INDICATION AT POSITION 6	TAPE CONDITION
0	Normal condition
3	There is no video cassette inside
9	Detect the begining of Tape
A	Detect the Tape end

Fig. T6

(4) Data Number 7:
When the pushed STOP key, Data 7 indicate

INDICATION AT POSITION 7	KEY OPERATION
00	STOP
01	EJECT
02	REWIND
03	FF
04	REVIEW
05	CUE
06	PAUSE
08	REC
09	A. DUB
0A	PLAY
0C	F. ADV
54	COUNTER CLEAR
55	COUNTER MEMORY
57	OSD ON/OFF
67	DATE ON/OFF
9F	EDIT
B1	TRACKING UP
B2	TRACKING DOWN
B3	INSERT
CC	START/STOP
FF	NOP

Fig. T7

(5) Data Number 8:

INDICATION AT POSITION 8	I/O PORT CONDITION FOR I6004
80	Loading Command is output (PIN 125)
40	Unloading Command is output (PIN 124)
20	Not use
10	Audio Mute "H" is output (PIN 122)
8	Not use
4	Audio EE "H" is output (PIN 120)
2	Video EE "H" is output (PIN 119)
1	PB "L" is output (Pin 118)

Fig. T8

(6) Data Number 9

INDICATION AT POSITION 9	I/O PORT CONDITION FOR IC6004
80	SENSOR LED "L" Command is output (IC6004 PIN 14)
40	REMOCON LED "L" Command is output (IC6004 PIN 13)
20	TALLY LED "L" Command is output (IC6004 PIN 12)
10	POWER LED "L" Command is output (IC6004 PIN 11)
8	CYLINDER ON "L" Command is output (IC6004 PIN 10)
4	FULL ERASE ON Command is output (IC6004 PIN 9)
2	CAMERA P. ON Command is output (IC6004 PIN 8)
1	POWER ON Command is output (IC6004 PIN 7)

Fig. T9

(7) Data Number 10

INDICATION AT POSITION 10	I/O PORT CONDITION FOR IC6004
80	DC LIGHT ON Command is output (IC6004 PIN 37)
40	X. TAL ON Command is output (IC6004 PIN 36)
20	——
10	——
8	——
4	——
2	——
1	——

Fig. T10

(8) Data Number 11 and 12

INDICATION AT POSITION 11	INDICATION AT POSITION 12	BATTERY VOLTAGE LEVEL
00~03	10	Less than 10.5 Volt
04~0A	8	10.5~11.0 Volt
0B~0A	4	11.0~11.5 Volt
11~17	2	11.5~12.0 Volt
18~	1	More than 12.0 Volt

Fig. T11

3. HOW TO CHECK DIGITAL CIRCUIT (PROCESS)(Using Ramp Generator)

3–1. Checking Principle

The digital circuit can be checked if a ramp signal (sawtooth signal) is supplied to the input of A/D Converter (IC307–19). The output of A/D Converter is described below.
In addition to the A/D Converter (IC307) output, all digital ICs input and output signals become specified pulses, which are listed in schematic diagram.

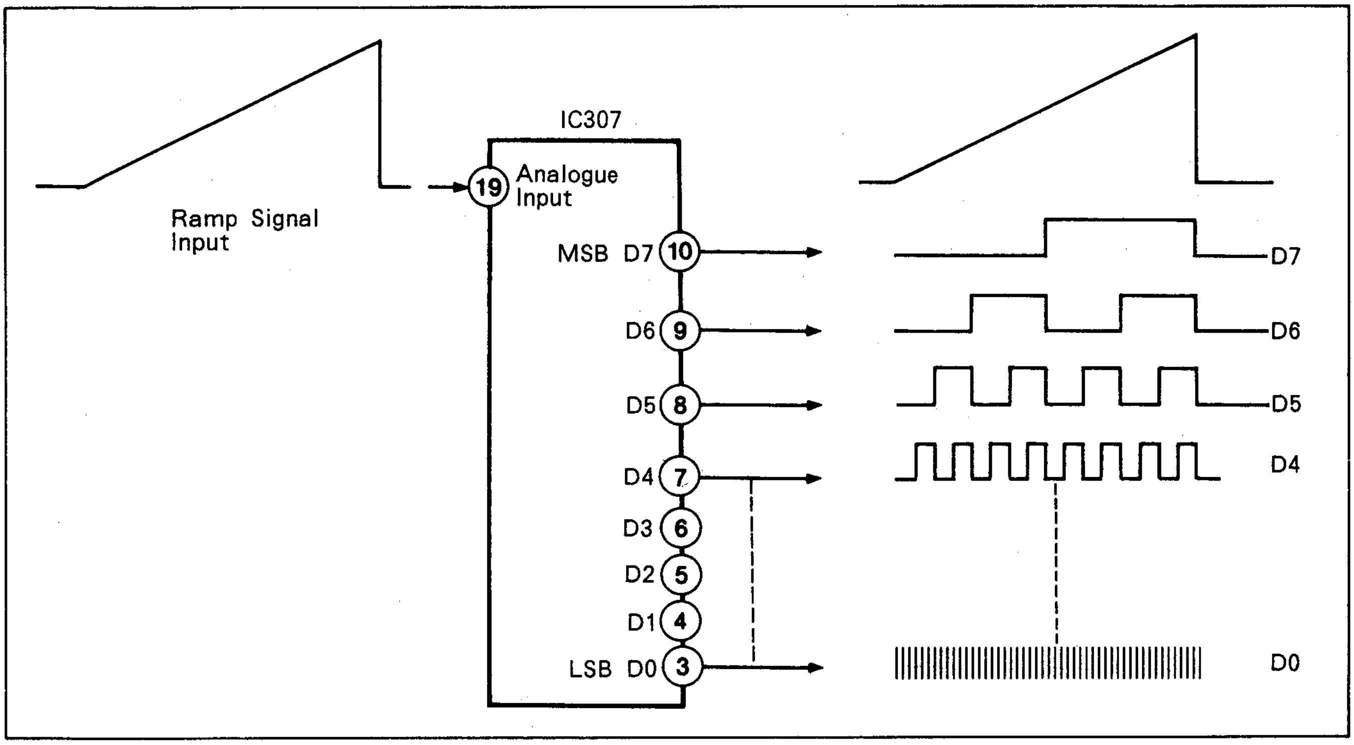
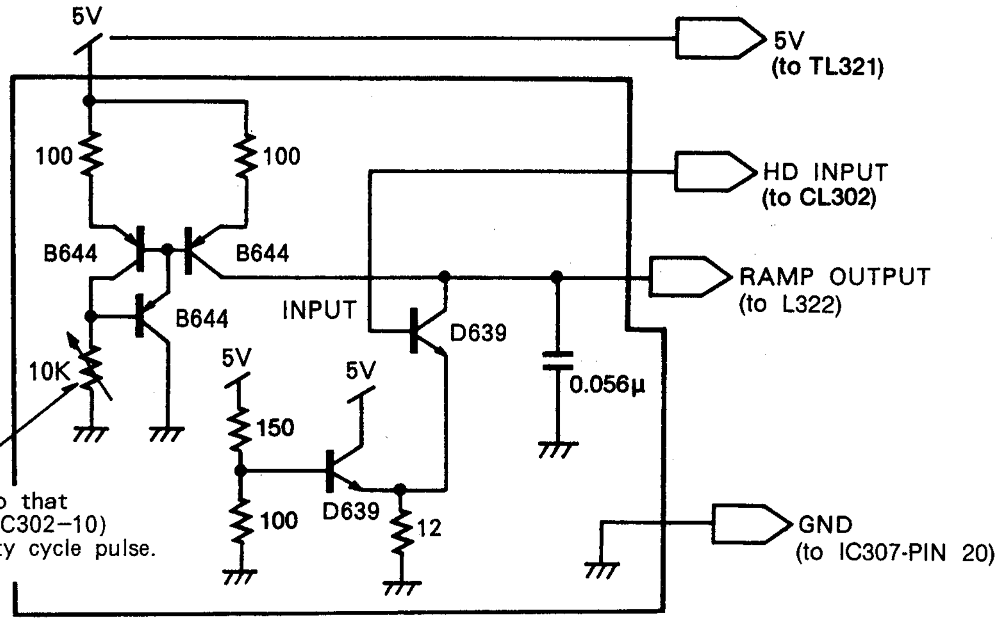

Ramp Signal Input
IC307
19
Analogue Input
MSB D7
10
D6
9
D5
8
D4
7
D3
6
D2
5
D1
4
LSB D0
3
D7
D6
D5
D4
D0

Fig. T12

3–2. How to Connect ramp generator

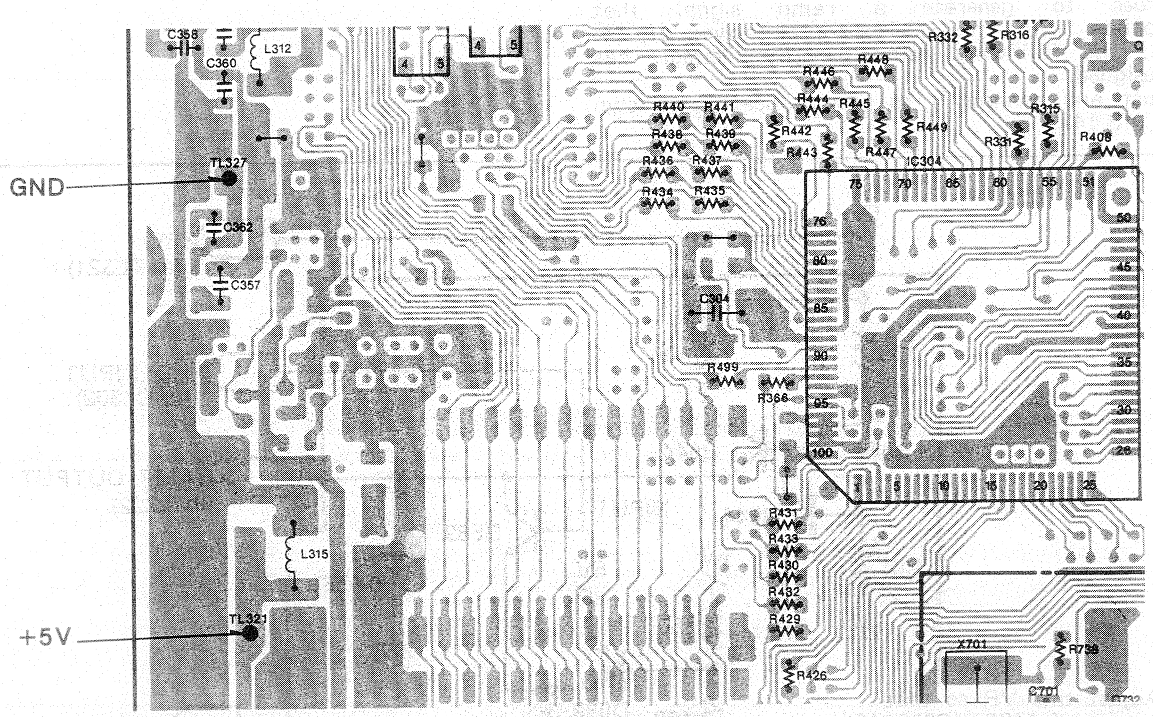
In order to generate a ramp signal that synchronizes with the HD(horizontal drive) of the camera, the following ramp generator circuit has been designed.
Construct and connect it to process board as shown in Fig.T13,14.


5V
5V
(to TL321)
100
100
HD INPUT
(to CL302)
B644
B644
RAMP OUTPUT
(to L322)
B644
INPUT
D639
10K
5V
5V
0.056µ
150
100
D639
12
GND
(to IC307-PIN 20)

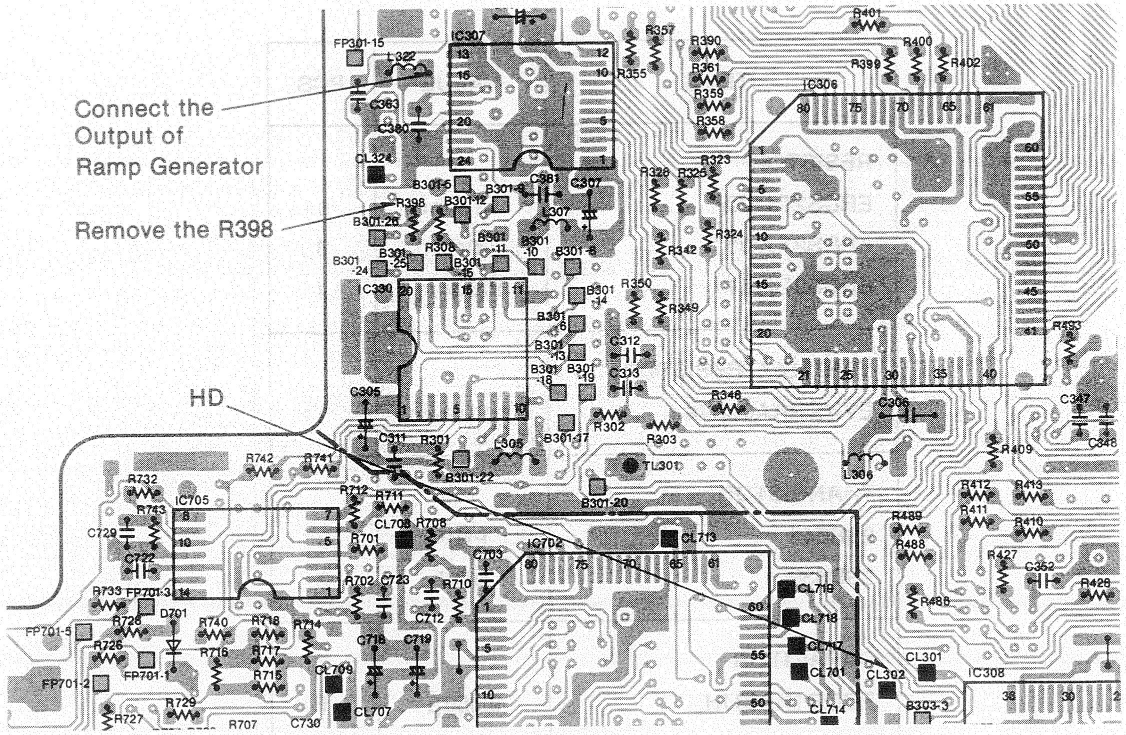
Adjust this VR so that
output of MSB (IC302–10)
become 50–50 duty cycle pulse.

ITEMS	VALUE	PCS
RESISTOR		
ERDS2TJ120	**12ohm**	**1**
ERDS2TJ101	**100ohm**	**3**
ERDS2TJ151	**150ohm**	**1**
VARIABLE RESISTOR		
EVNDRAA00B14	**10Kohm**	**1**
TRANSISTOR		
2SB644	**PNP**	**3**
2SD639	**NPN**	**2**
CAPACITOR		
ECQB1H563JH	**0.056µ**	**1**

Fig. T13


GND
TL327
+5V
TL321
C358
C360
L312
C362
C357
L315
C304
R499
R366
IC304
R440
R441
R438
R439
R436
R437
R434
R435
R446
R448
R444
R445
R442
R443
R447
R449
R332
R316
R315
R331
R408
R431
R433
R430
R432
R429
R426
X701
R738
C701

(COMPONENT SIDE)


Connect the Output of Ramp Generator
Remove the R398
HD
IC307
IC306
IC330
IC705
IC702
IC308
FP301-15
L322
C363
C380
CL324
R398
C381
C307
L307
R355
R357
R390
R361
R359
R358
R401
R400
R399
R402
R328
R325
R323
R324
R342
R350
R349
C312
C313
C305
C311
R301
L305
R302
R303
R346
C306
TL301
L306
R409
C347
C348
R493
R742
R741
R732
R743
C729
C722
R733
FP701-3
FP701-5
FP701-1
FP701-2
D701
R728
R726
R727
R729
R707
C730
R712
R711
CL708
R708
R701
R702
C723
R710
C703
C712
C718
C719
CL709
CL707
R740
R718
R714
R716
R717
R715
CL713
CL719
CL718
CL717
CL701
CL714
CL302
CL301
B303-3
R412
R413
R411
R410
R489
R488
R427
C352
R428
R486

(FOIL SIDE)

Fig. T14

SECTION 1

OPERATING INSTRUCTIONS

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Controls and Functions

1 **Stereo Microphone**

2 **White Balance Sensor Window**

3 **Tally Lamp**
It is lit during shooting to inform the people in front of the Movie Camera that shooting is under way.

4 **Accessory Shoe**
Some optional accessories (External Microphone, etc.) can be attached to this Accessory Shoe.

5 **Operation Switch [POWER]**
For turning the Movie Camera on and off.

6 **S-VHS System Selector Switch [S-VHS ON/AUTO/OFF]**
The selected recording system can be selected by sliding the [S-VHS ON/AUTO/OFF] Switch to the corresponding position.

7 **CAMERA/VCR Selector Cover [CAMERA/VCR]**

8 **Built-in Speaker**

9 **Zoom Buttons**
Press these buttons to gradually zoom in and out.

10 **Lens Cap**

11 **Lens Hood**

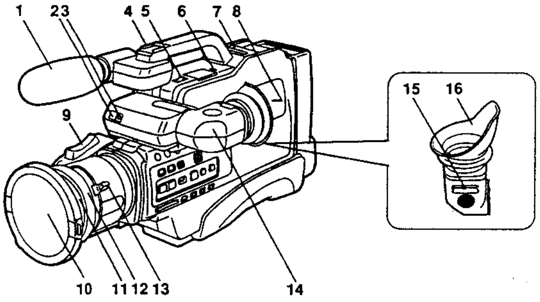
12 **Focus Ring**
After selecting the manual focusing mode with the [FOCUS] Button, adjust the focus to the desired subject by turning this ring.

13 **Manual Zoom Lever**
Turn this lever to manually zoom in or out.

14 **Viewfinder**
The subject in front of the camera can be seen on the viewfinder screen.

15 **Eyepiece Corrector**
Adjust the Eyepiece Corrector to your eyesight so that the picture and indications in the Viewfinder become as clear and sharp as possible.

16 **Eyecup**



Controls and Functions (cont'd)

17 **Shoulder Strap Holders**

18 **Tape Eject Button [TAPE EJECT]**
To insert or take out a video cassette, press this button.

19 **Battery Pack Eject Lever [BATT.EJECT]**
Slide this lever to remove the Battery Pack.

20 **Cassette Compartment**
Insert a video cassette into this compartment.

21 **Start/Stop Button**
Press this button to start and stop shooting.

22 **Grip Belt**

23 **Remote Control Jack [REMOTE]**

24 **Edit Jack [EDIT]**

25 **S-Video Output Jack [S-VIDEO OUT]**

26 **Speaker On/Off Switch [SPEAKER ON/OFF]**

27 **Audio Selector Switch [Hi-Fi/MIX/NORMAL]**

28 **Video Output Jack [VIDEO OUT]**

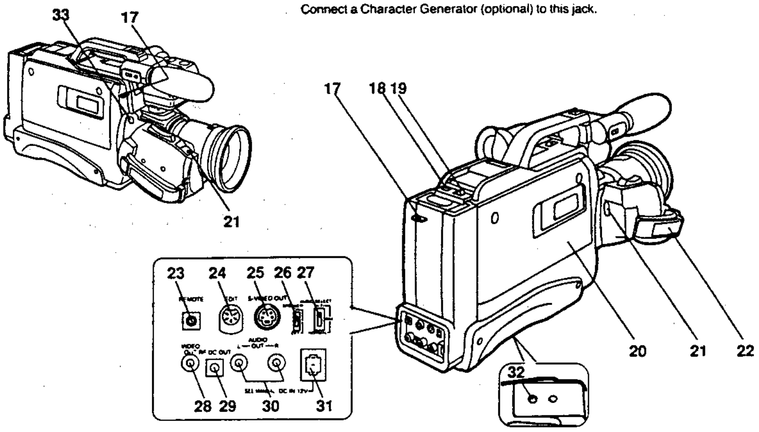
29 **RF and DC Output Jack [RF DC OUT]**

30 **Audio Output Jack [AUDIO OUT]**

31 **DC Input Jack [DC IN 12 V]**
Connect the DC Input Cable to this jack.

32 **Tripod Receptacle**
When using a tripod for stable shooting, attach the screw of the tripod to this receptacle.

33 **Character Generator Jack [CHAR.GEN]**
Connect a Character Generator (optional) to this jack.



Controls and Functions (cont'd)

34 **Microphone Mode Selector Switch [MIC.SELECT WIDE/TELE/ZOOM]**

35 **External Microphone Jack [MIC]**

36 **Low Light Button [LOW LIGHT]**
For shooting evening scenes and other scenes in low light conditions.

37 **Focus Button [FOCUS]**
Press this button to select manual focus adjustment for shooting.

38 **White Balance Button [W.B]**
Press this button to select manual white balance adjustment.

39 **Iris Close Open/Shutter –/+ Button**
The F Number and the shutter speed can be adjusted manually by pressing these buttons.

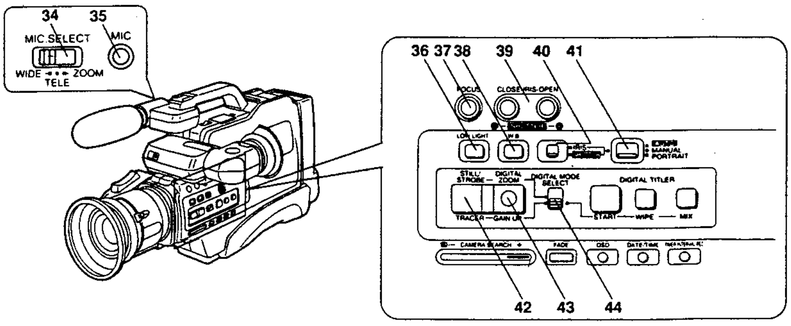
40 **Selector Switch for the Iris/Shutter Speed Adjustment Function [IRIS/SHUTTER]**
The Iris Adjustment Function and the High-Speed Shutter Adjustment Function can be selected with this switch.

41 **Mode Selector Switch [AUTO/MANUAL/PORTRAIT]**
Use this selector switch to select the automatic, manual or portrait shooting mode.

42 **Still/Strobe/Tracer Button [STILL/STROBE]/[TRACER]**
Depending on the setting of the [DIGITAL MODE SELECT] Switch, this button can be pressed for shooting still pictures and pictures with strobe effect or with an intentional after-image effect.

43 **Digital Zoom/Gain Up Button [DIGITAL ZOOM]/[GAIN UP]**
Depending on the setting of the [DIGITAL MODE SELECT] Switch, this button can be pressed to increase the power of the power zoom function or to increase the sensitivity when shooting in the dark.

44 **Digital Mode Selector Switch [DIGITAL MODE SELECT]**
Use this switch to select the desired Digital Shooting Function.



Controls and Functions (cont'd)

45 **Digital Start Button [START]**
Press this button to start the Digital Wipe Function or the Digital Mix Function.

46 **Digital Wipe Button [WIPE]**
Press this button for a horizontal wipe transition from a moving picture to a still picture from the memory, or vice-versa.

47 **Digital Mix Button [MIX]**
Press this button to gradually fade over from the moving picture to a still picture from the memory, or vice-versa, or to combine the two pictures.

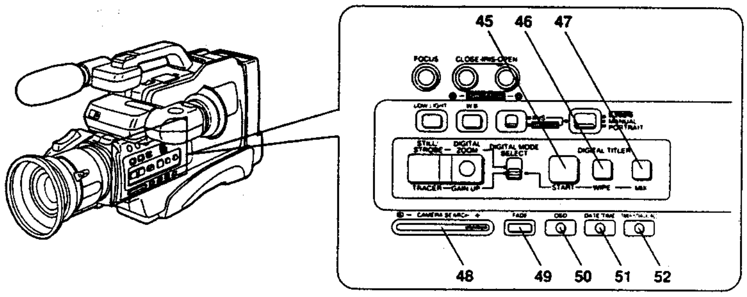
48 **Camera Search Button [⊟ /– CAMERA SEARCH +]**
Keep these buttons pressed to play back recorded scenes at high speed in reverse direction or at normal speed in forward direction.
To check the last few seconds of the last recorded scene, press the [– CAMERA SEARCH] Button briefly.

49 **Fade Button [FADE]**
Press this button to fade out a scene and to fade in the following scene for a soft scene-to-scene transition.

50 **On-Screen Display Button [OSD]**
Press this button to make the indications in the Viewfinder disappear.

51 **Date/Time Button [DATE/TIME]**
Press this button to make the time and/or date appear in the Viewfinder and superimpose them onto the picture while shooting.

52 **Interval Button [TIMER/INTERVAL REC]**
Press this button to activate the Self-Timer or Interval Shooting Function.



Controls and Functions (cont'd)

53 **Reset Button [RESET]**
Press this button to reset the tape counter to "0000".

54 **Memory Button [MEMORY/DISPLAY]**
Press this button to activate the Tape Counter Memory Function.

55 **Tracking/Date/Time Shift Button [DATE/TIME SHIFT • TRACKING]**
1) Press it to advance to the next item during the setting of the time and date.
2) Press it when you want to adjust the tracking manually.

56 **Tracking/Date/Time Set Button [DATE/TIME SET • TRACKING]**
1) Press it to change the figures during the setting of the time and date.
2) Press it when you want to adjust the tracking manually.

57 **Pause Button [PAUSE]**
Press this button during playback to watch a still picture.

58 **Rewind/Review Button [REW/⊟]**
Press this button to rewind the tape.

59 **Audio Dubbing Button [A.DUB]**
Press this button to add new sound on a recorded tape with the Audio Dubbing Function.

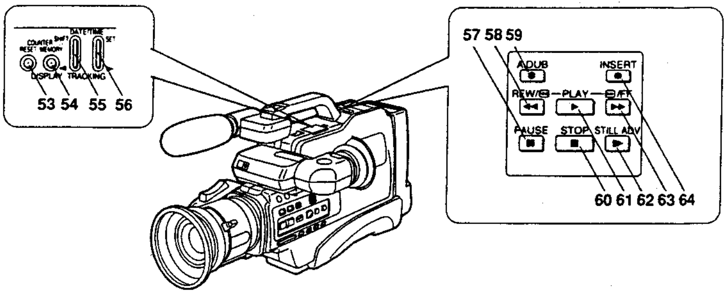
60 **Stop Button [STOP]**
Press this button to stop playback.

61 **Play Button [PLAY]**
Press this button to start playback.

62 **Still Advance Button [STILL ADV]**
After pressing the Pause Button, press this button to advance the still picture frame by frame.

63 **Fast Forward/Cue Button [⊟/FF]**
Press this button to wind the tape forward.

64 **Insert Button [INSERT]**
Press this button to insert new scenes on a previously recorded cassette tape.



Using the Battery Pack

■ Charge the Battery Pack

1 **Connect the Battery Pack and the AC Adaptor to the Battery Pack Charging Connector.**

2 **Connect the Power Cable of the AC Adaptor to the AC Outlet (120 V AC 60 Hz).**

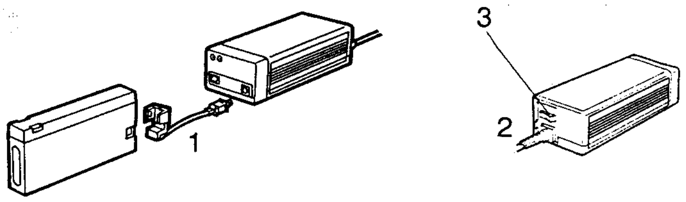
3 **Turn the AC Adaptor on.**

Notes:
- When the AC Adaptor is connected to the Movie Camera and the Movie Camera is turned off, it is possible to charge two Battery Packs simultaneously—one connected to the AC Adaptor and the other inserted into the Movie Camera. However, charging them at the same time takes twice as long as charging them separately.
- Charge the Battery Pack within a temperature range of 50°F–95°F (10°C–35°C).

Charging Indication Lamp:
When charging is started, the red lamp lights up. When about 45 minutes of charging time remain, the lamp will change to green. The Charging Indicator will go out about 100 minutes after charging starts. However, the Battery Pack should be charged at least 3 hours for extended use.

Operation Time:
With a fully charged Battery Pack (AG-BP20P), the Movie Camera can be used (in record mode only) continuously for approx. 110 minutes at 77°F (25°C). However, depending on how often the various functions listed below are used, and depending on the shooting conditions, the actual operation time may be considerably shorter.
- Shooting start/stop
- Auto focus
- Zoom function
- Playback, fast forward, rewind and other operations
- Digital functions
- Use of the Movie Camera in low temperature

Therefore, it is recommended to take along a charged spare Battery Pack.



Using the Battery Pack (cont'd)

■ How to Insert the Battery Pack

1 **Insert the Battery Pack until it locks with a click.**

Note:
Insert the Battery Pack with its (+) side facing the rear of the Movie Camera.

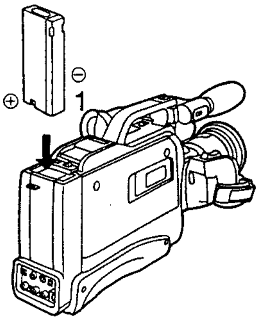
■ How to Remove the Battery Pack

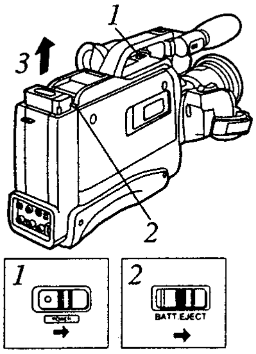
1 **Turn the Movie Camera off.**

2 **Slide.**

3 **Pull out the Battery Pack.**

Caution:
If the Battery Pack is removed during recording or playback, the tape remains wound around the video head cylinder and could become damaged.
This is also the case during the loading and unloading of the tape.





Setting the Clock

■ How to Set the Date and Time

At the time of purchase, the clock does not show the correct time and must first be adjusted.

1 **Turn the Movie Camera on.**

2 **Press.**

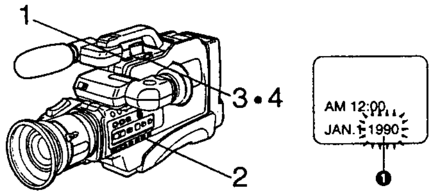
3 **Keep pressed for more than about 2 seconds.**
- The year portion ❶ of the Date/Time Indication starts to flash.
- The flashing portion of the Date/Time Indication can be changed with the [SHIFT] Button in the following order:

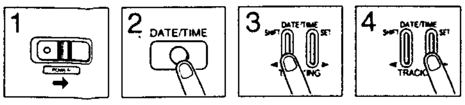
→ Year → Month → Day → Hour → Minute → " " →

4 **Press to change the figures.**

Year: 1990 → 1991 → .... → 2089 → 1990 → ...
Month: JAN → FEB → .... → DEC → JAN → ...
Day: 1 → 2 → .... → 31 → 1 → ...
Hour: AM 12 → AM 1 → .... → PM 11 → AM 12 → ...
Minute: 00 → 01 → .... → 59 → 00 → ...

- Repeat procedures 3 and 4 until all items have been set correctly.
- Once the date and time are set and press the [SHIFT] Button in response to an accurate time source so that the clock begins to function.





Setting the Clock (cont'd)

■ The Built-in lithium battery

A built-in rechargeable lithium battery maintains the operation of the built-in clock when the Movie Camera is turned off. When the Movie Camera is in operation, this battery is recharged automatically.
However, if the Movie Camera is not used for a very long time, the lithium battery can become exhausted. In this case, the Indication "⊜" in the Viewfinder flashes and the date and time return to the initial Indication "JAN. 1 1990".

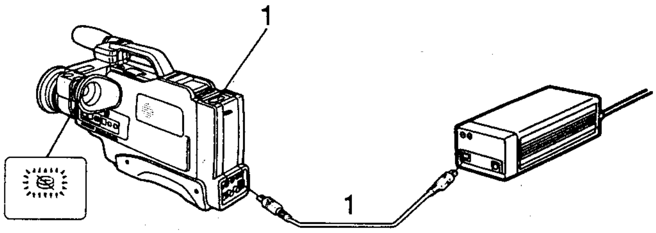
■ How to Recharge the Built-In Lithium Battery

If the Indication "⊜" in the Viewfinder flashes for approx. 10 seconds when turning the Movie Camera on, the lithium battery needs to be recharged as follows:

1 **Connect the Movie Camera to the AC Adaptor or insert the Battery Pack into the Movie Camera.**

2 **Leave the Movie Camera for 20 hours.**
The Movie Camera does not need to be turned on.

- When the lithium battery is fully charged, it can maintain the operation of the clock for approx. one year.



Shooting with the Zoom Function

This Movie Camera offers both power zooming and manual zooming. Use these functions according to the shooting situations and types of subject.

■ Using the Power Zoom Function

Pressing the [W] or [T] Zoom Button gives you smooth motor-driven zooming.

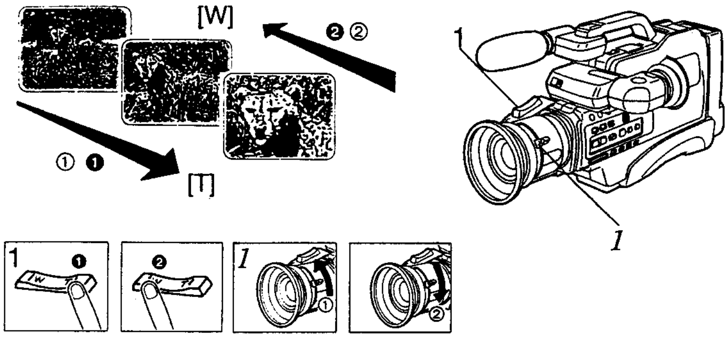
1 **Keep pressed for telephoto.**
Zoom in (subject appears closer ❶)
Keep pressed for wide-angle.
Zoom out (subject appears further away ❷)

■ Using the Manual Zoom Function

Quick zooming is possible by manually turning the Manual Zoom Lever up or down.

1 **Turn the Manual Zoom Lever.**
Turn it upward ① to zoom toward telephoto.
Turn it downward ② to zoom toward wide-angle.

Note:
Do not operate the [W] or [T] Zoom Button and the Manual Zoom Lever simultaneously, because this could cause the zoom function to malfunction.



■ Using the Digital Zoom Function

The Digital Zoom Function makes it possible to zoom in on a subject and enlarge it by up to 100 times by using the [T] Zoom Button and the [DIGITAL ZOOM] Button.

1 **Slide up.**

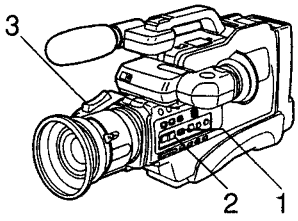
2 **Press.**
- At one press, the "D.ZOOM 1" Indication appears in the Viewfinder; at a second press, the "D.ZOOM 2" Indication appears.

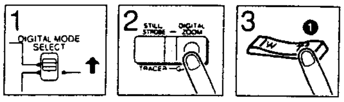
3 **Press ❶.**

■ To Cancel this Function...

Press the [DIGITAL ZOOM] Button.
- When the Digital Zoom Function is turned off, the zoom range is limited to ×12.
- When the Digital Zoom Function is activated, the picture is magnified electronically and the zoom range is increased to ×24 (D.ZOOM 1) and ×100 (D.ZOOM 2).
- The Digital Zoom Function slightly decreases the picture resolution and fine picture details.
- When shooting under very bright conditions, the after-image can be eliminated by selecting a shutter speed of 1/250 or 1/500 sec.

Notes:
- The higher the magnification of the Digital Zoom becomes, the grainer the picture will be. When the zoom range is increased to ×100, the picture and its colors may become unnatural.
- Zooming in the Digital Zoom Mode is not possible with the Manual Zoom Lever. (If it is used, zooming in is not possible beyond 12× magnification.)





Shooting with the Fade Function

■ How to Fade in ❶

Fading in from black is very effective at the beginning of a movie and for soft transitions between scenes.

1 **Press to pause the shooting.**

2 **Keep pressed.**

3 **After the picture in the Viewfinder has disappeared, press to start the shooting.**

4 **After about 3 seconds, release the button.**

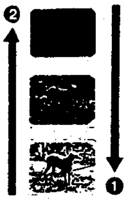
■ How to Fade out ❷

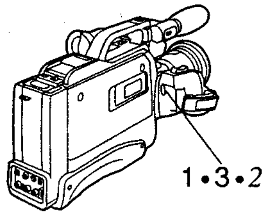
Fading out to black is convenient at the end of a scene to create a soft ending.

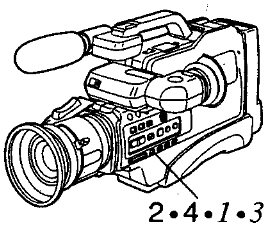
1 **Keep pressed during shooting.**

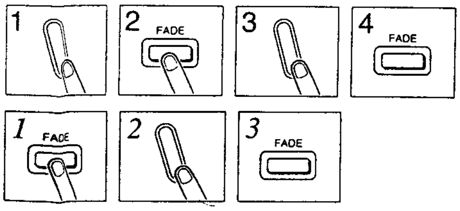
2 **After the picture has disappeared, press to stop the shooting.**

3 **Release the button.**









Shooting with the After-Image Effect (Tracer Function)

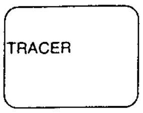
This function can be used to emphasize the speed of movements in fast-action scenes.

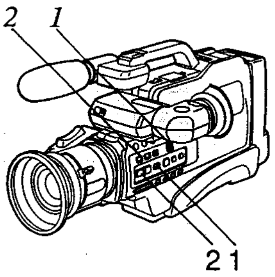
1 **Slide the Digital Mode Select Switch to downward.**

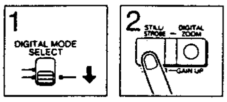
2 **Press the "TRACER" Button.**
- The "TRACER" Indication appears.

■ To cancel this function...

Press the [TRACER] Button again or slide the Digital Mode Select Switch to upward.







Shooting Backlit Scenes

(Iris Adjustment)

This function makes it possible to brighten up the subject when shooting a backlit scene.

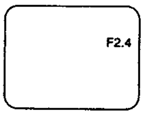
1 **Set the Mode Selector Switch to "MANUAL".**

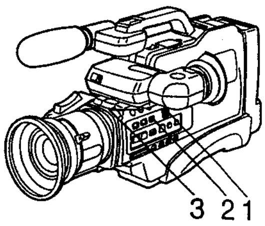
2 **Set to "IRIS".**

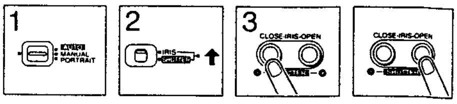
3 **Press repeatedly the either button to select the desired F Number.**
- The F Number Indication appears.
- The F Number can be changed in 18 steps:
  OP+G2, OP+G1, OPEN, F2, F2.4, F2.8, F3.4, F4, F4.8, F5.6, F6.8, F8, F9.6, F11, F14, F16, F19, CLOSE

■ To Return to the Standard Iris Setting...
- Press the [IRIS OPEN] Button and [IRIS CLOSE] Button simultaneously for more than 1 second.
- Returning to the standard iris setting is also possible by setting the Mode Selector Switch to "AUTO".

Cautions for Shooting Backlit Subjects
- The sky may become whitish.
- In case of extremely strong backlight, is may not be possible to brighten up the subject sufficiently.
- When shooting with the sun striking the subject at an angle, star-shaped light reflexes may be recorded in the picture.







Shooting in Dark Area

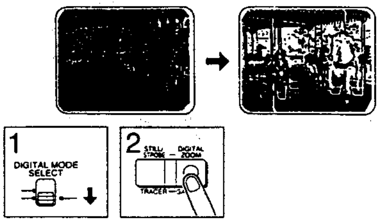
(High Sensitivity Function)

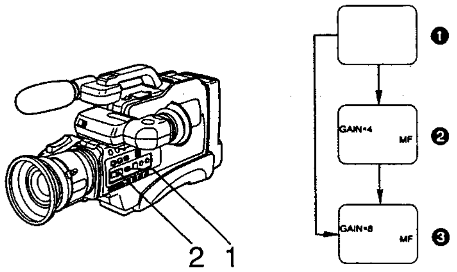
1 **Slide down.**

2 **Press.**
- By pressing the [GAIN UP] Button repeatedly, the degree of the sensitivity can be changed as follows:

→No indication → GAIN ×4 → GAIN ×8 ❶ ❷ ❸

Notes:
- Some after-image distortion will occur.
- When the High Sensitivity Function is activated, no other Digital Mode Function can be used.
- The High-Speed Shutter Function and Iris Adjustment will be canceled automatically.
- In the High-Sensitivity Mode, the focus must be adjusted manually since the Movie Camera is automatically put into the Manual Focus Mode.





Shooting with the Macro Function

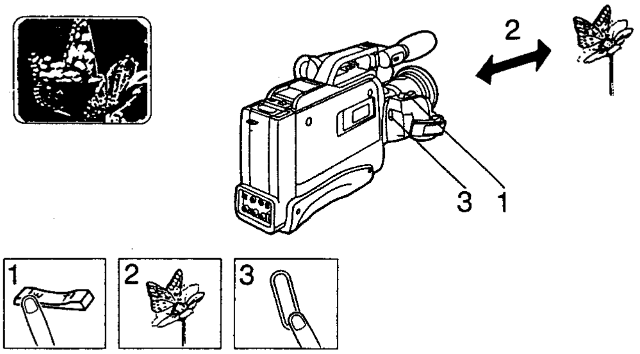
The Macro Close-up Function makes it possible to shoot very small objects, photos, printed matter, insects and many other things.

1 **Keep pressing to zoom to the maximum wide-angle position.**

2 **Approach the subject to the desired distance.**
- The focus will be adjusted automatically (Auto Focus Mode).

3 **Press.**
- The shooting starts.

Hints for Shooting with the Macro Close-up Function
- To get more or less of the subject into the picture, change the distance between the lens and the subject; do not use the [W] or [T] Zoom Button.
- As the depth of field is very small in macro shooting, even slight camera movements can cause the subject to go out of focus. Therefore, it is recommended to use a tripod.
- When the zoom lens is in its maximum telephoto position, the minimum shooting distance between lens and subject is 1.5 m.
- In macro close-up shooting, the subject can be approached down to a minimum distance of 4 cm between lens and subject. It is recommended to use the Auto Focus Mode. However, with a stable camera position (tripod, etc.), the Manual Focus Mode can also be used.



Shooting Fast-Moving Subjects

(High-Speed Shutter Function)

A range of different high shutter speeds makes it possible to shoot scenes with fast movements. When scenes recorded with a high shutter speed are later played back on a VCR equipped with super still and super fine slow motion functions, still and slow motion playback with very sharp picture contours and brilliant details can be obtained.

1 **Set to "MANUAL".**

2 **Set to "SHUTTER".**

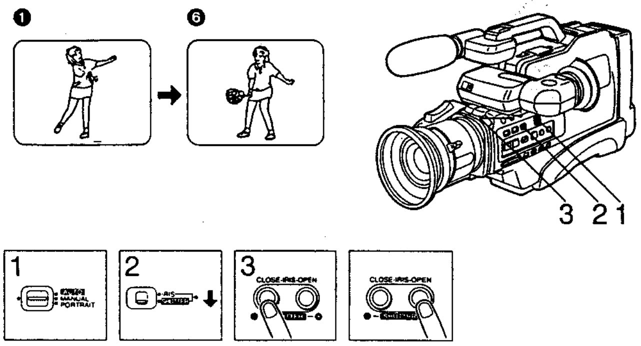
3 **Press repeatedly either Button to select the desired shutter speed.**
- The shutter speed can be changed in 8 steps:

Pressing the [SHUTTER +] Button →

❶	❷	❸	❹	❺	❻	❼	❽
1/60	1/100	1/250	1/500	1/1000	1/2000	1/4000	1/8000
(No indication) Normal							

← Pressing the [− SHUTTER] Button

Conditions for Shooting with the High-Speed Shutter
- The subject must be brightly lit by sunlight or other strong illumination, with little shade.
- When shooting under fluorescent lamps, the picture will be adversely influenced by flickering.
- When the picture is played back in the normal playback mode, the picture movement may not be as smooth as normally.
- The playback picture will be slightly darker than the picture recorded without using the High-Speed Shutter Function.



Self-Timer Recording and Interval Recording

■ Self-Timer Recording

1 **Press during recording pause to select the desired recording mode.**
- When the Timer/Interval Recording Button is pressed once, "SLF20" will appear in the Viewfinder, and when the button is pressed, "SLF" will appear in the Viewfinder.

2 **Press.**
- The self-timer recording will start 10 seconds later.
- When "SLF20" is indicated, the recording will be made for 20 seconds.
  When "SLF" is indicated, the recording will be made until the tape reaches its end.

To stop the Self-Timer Recording Midway
Press the Start/Stop Button, and the self-timer recording will be canceled.

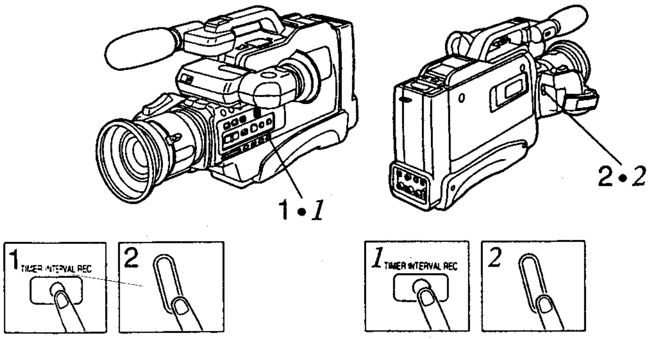
■ Interval Recording

This recording function automatically makes recordings of approx. 1 second duration at 50 seconds intervals. (However, the initial recording will last for about 5 seconds.) The interval recording will continue for a maximum of 10 hours, after which the Movie Camera will turn itself off.

1 **Press three times during recording pause mode.**
- "INT" will appear in the Viewfinder.

2 **Press.**

To stop the Interval Recording Midway
Press the Start/Stop Button, and the interval recording will be canceled.



Manual Focus Function

1 **Set the Mode Selector Switch to "MANUAL".**

2 **Press.**
- The "MF" indication appears in the Viewfinder ❶.

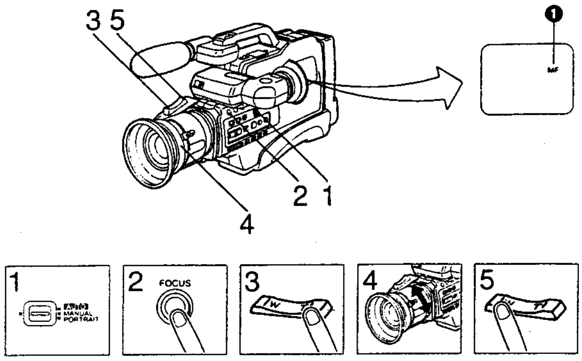
3 **Press to zoom in on the subject to be focused.**

4 **Turn the Focus Ring to adjust the focus.**

5 **Press to zoom back as desired.**

■ To Change back to the Auto Focus Mode...
Press the [FOCUS] Button or set the [AUTO/MANUAL/PORTRAIT] Switch to "AUTO".
- The "MF" Indication disappears in the Viewfinder.

Note:
When using the Manual Focus Mode, always adjust the lens with the Zoom [T] Button in the maximum tele setting.
This will ensure that the subject remains precisely focused throughout the zoom range from the maximum tele to maximum wide-angle setting.



Inserting a Still Picture with Wipe Editing *(Digital Wipe)*

■ Inputting a Still Picture into the Memory

When the Movie Camera is in the shooting pause mode:

1 **Slide down.**

2 **Press.**
- Press this button while aiming the Movie Camera at the scene to be used for the still picture.
- The image in the Viewfinder stands still for approx. 2 seconds and this still picture is input into memory.

■ Starting to Shoot a Scene with the Still Picture

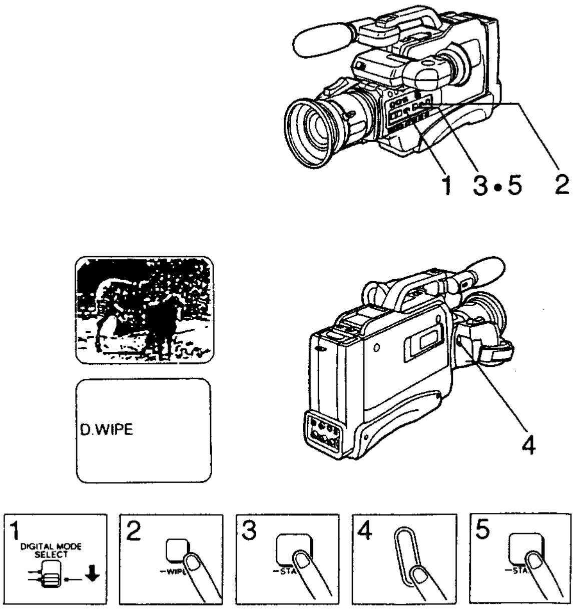
In the shooting pause mode:

3 **Press.**
- The still picture from the memory replaces the moving picture gradually, starting from the left side.
- The Movie Camera should be aimed at the scene, which is to be shot following the recording of the still picture.

4 **Press.**
- The still picture from the memory is now being recorded.

5 **Press again.**
- The moving picture again replaces the still picture gradually, starting from the right side, and the shooting of the moving picture continues.

■ Canceling the Digital Wipe Function
Slide the Digital Mode Selector Switch up.



Playback via a TV Set (Connections)

Turn off the Movie Camera and the TV set.

Connect the Movie Camera to the TV set.

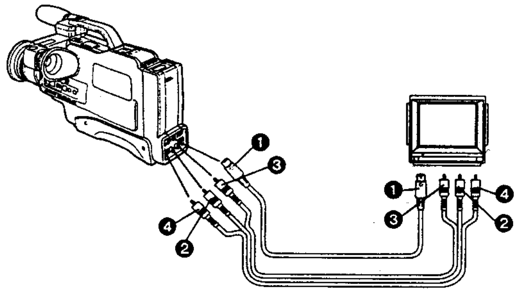
Using the Supplied S-Video Cable and Audio/Video Cable

Movie Camera **TV Set**

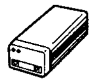
S-Video Output Jack ❶ ——→ S-Video Input Jack ❶
Audio Output Jack (L) ❷ ——→ Audio Input Jack (L) ❷
Audio Output Jack (R) ❸ ——→ Audio Input Jack (R) ❸
Video Output Jack ❹ ——→ Video Input Jack ❹

Note:
Use either the S-Video Cable or Video Cable to connect the Movie Camera to the TV set.

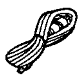
- **Activate the Playback Operation**
(See page 48.)



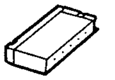
1. AG-B6HP or AG-B6P



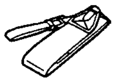
2.



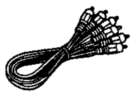
3.



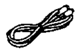
4.



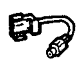
5.



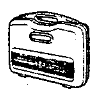
6.



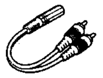
7.



8.

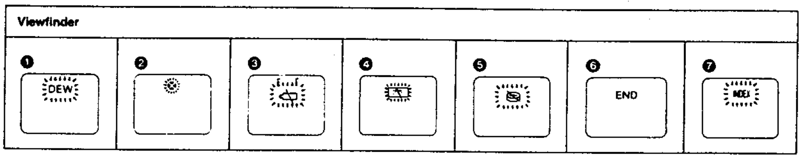


9.



1. **AC Adaptor**
For supplying power to the Movie Camera or for charging the Battery Pack
2. **DC Input Cable**
For connection to the AC Adaptor
3. **Battery Pack**
For supplying power to the Movie Camera
4. **Shoulder Strap**
5. **Audio/Video Cable**
For connection to another VCR or Video Monitor
6. **S-Video Cable**
For connection to another VCR or Video Monitor
7. **Battery Pack Charging Connector**
To recharge the Battery Pack, connect it to the AC Adaptor with this connector.
8. **System Case**
9. **Headphone Connector**
Connect it to the Audio Output Jacks to use stereo headphones.

Warning/Alarm Indications in the Viewfinder



These indications are displayed in the Viewfinder to inform you about the conditions of the Movie Camera.

❶ When condensation has formed inside the Movie Camera, the "DEW" indication flashes and a few seconds later, the Movie Camera will turn itself off.
Press the [TAPE EJECT] Button, remove the video cassette and wait until the "DEW" Indication disappears.

❷ Video Head Clogging.
Consult qualified service personnel.
(See page 58.)

❸ The "—" Indications begin to disappear one after another as the power of the Battery Pack weakens.
When the last bar has disappeared, the Battery Indication " " will flash.
When a Battery Pack is inserted, this indication initially always shows "E-----F", regardless of the Battery Pack's charging condition.

❹ There is no video cassette inside, or the tab of the inserted video cassette is broken out.
The indication flashes to warn that shooting is not possible. Insert a video cassette with intact tab. If the tab is broken out, seal the hole with adhesive tape.

❺ When the Lithium Battery (for the Auto Date Function, etc.) is exhausted, this indication will flash for 10 seconds after the Movie Camera has been turned on.

❻ During shooting: The tape has reached its end. Replace the video cassette with a new one whose tab is intact.

❼ It appears few seconds while an index signal is being recorded.

SECTION 2

MAINTENANCE & ADJUSTMENT PROCEDURES

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2 - 1. MAINTENANCE CHART

REGULAR MAINTENANCE

The purpose of periodic maintenance is to preserve the functioning of this machine throughout its useful life. The user or service dealer should perform these maintenance regularly to ensure that maximum utility is obtained from the machine.

The VCR is a complicated place of equipment. It contains many belts, rollers, heads etc., which become worn, and deterlorate as time goes by, causing trouble. Dust and dirt will also impede the proper functioning of the machine. In light of this, it is very important that overall maintenance be done according to the maintenance chart to maintain the functions of the VCR, and to avoid accidental problems. This maintenance should also be performed after any repairs are done on the equipment.

The VCR used for business applications requires particular attention for several reasons. The installation conditions and applications are not always the best. Long use times, or poor environmental conditions may adversely affect the lifespan and performance of the machine. Regular maintenance assures that the purchaser obtains the maximum value for his expenditure. Accordingly, the necessity of regular maintenance should be fully explained at the time of sale, as well as during after-sale repairs.

MAINTENANCE CHART

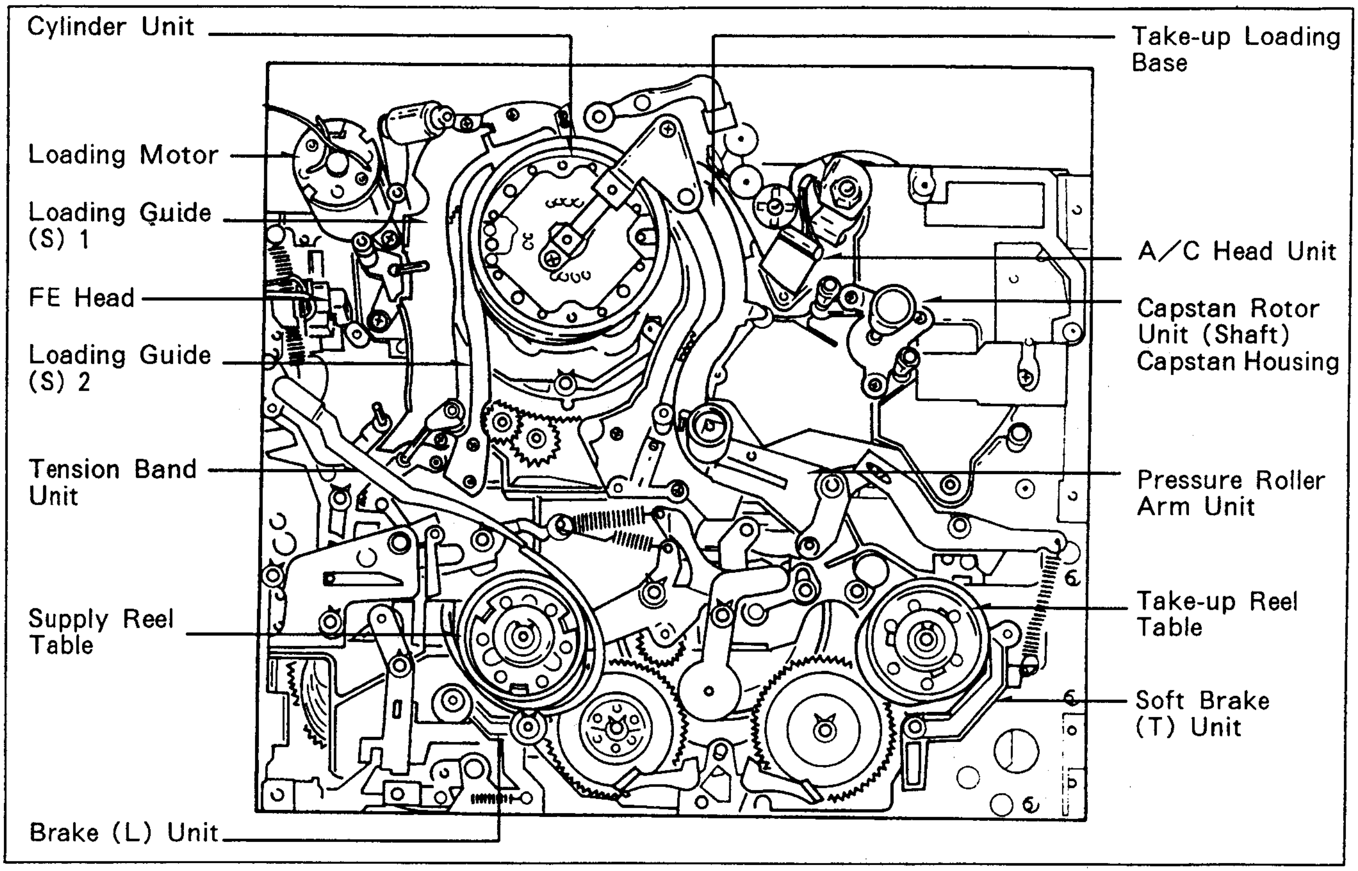
The following periodic maintenance is required to prolong the life of the machine.

Ref. No. IN P/L	Parts Name	Hour									
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000
—	Tape Transporters	●	●	●	●	●	●	●	●	●	●
257 (2)	A/C Head Unit	●	●	●	●	●	●	●	◎	●	●
282 (2)	FE Head	●	●	●	●	●	●	●	◎	●	●
140 (1)	Cylinder Unit	●	◎	●	◎	●	◎	●	◎	●	◎
123 (1)	Supply Reel Table	●	●	●	●△	●	●	●	●△	●	●△
126 (1)	Takeup Reel Tuble	●	●	●	●△	●	●	●	◎△	●	●
164 (1)	Capstan Roter U(Shaft)	●	●△	●	●△	●	●△	●	●△	●	●△
274 (2)	Pinch Roller Arm(1) U	●	◉	●	◎	●	◉	●	◎	●	◉
254 (2)	Brake (L) Unit				◎				◎		
253 (2)	Brake (R) Unit				◎				◎		
247 (2)	Tension Band Unit				◎				◎		
141 (1)	Loading Belt				◎				◎		
166 (1)	Capstan Belt				◎				◎		
242 (2)	Loading Motor Unit				◎				◎		
236 (2)	Take-up Loading Base					■					■
219 (2)	Loading Guide (S)(1)					■					■
220 (2)	Loading Guide (S)(2)					■					■
–	Cam Gear Section and Hyper Pressure Section (Between Metal)								■		

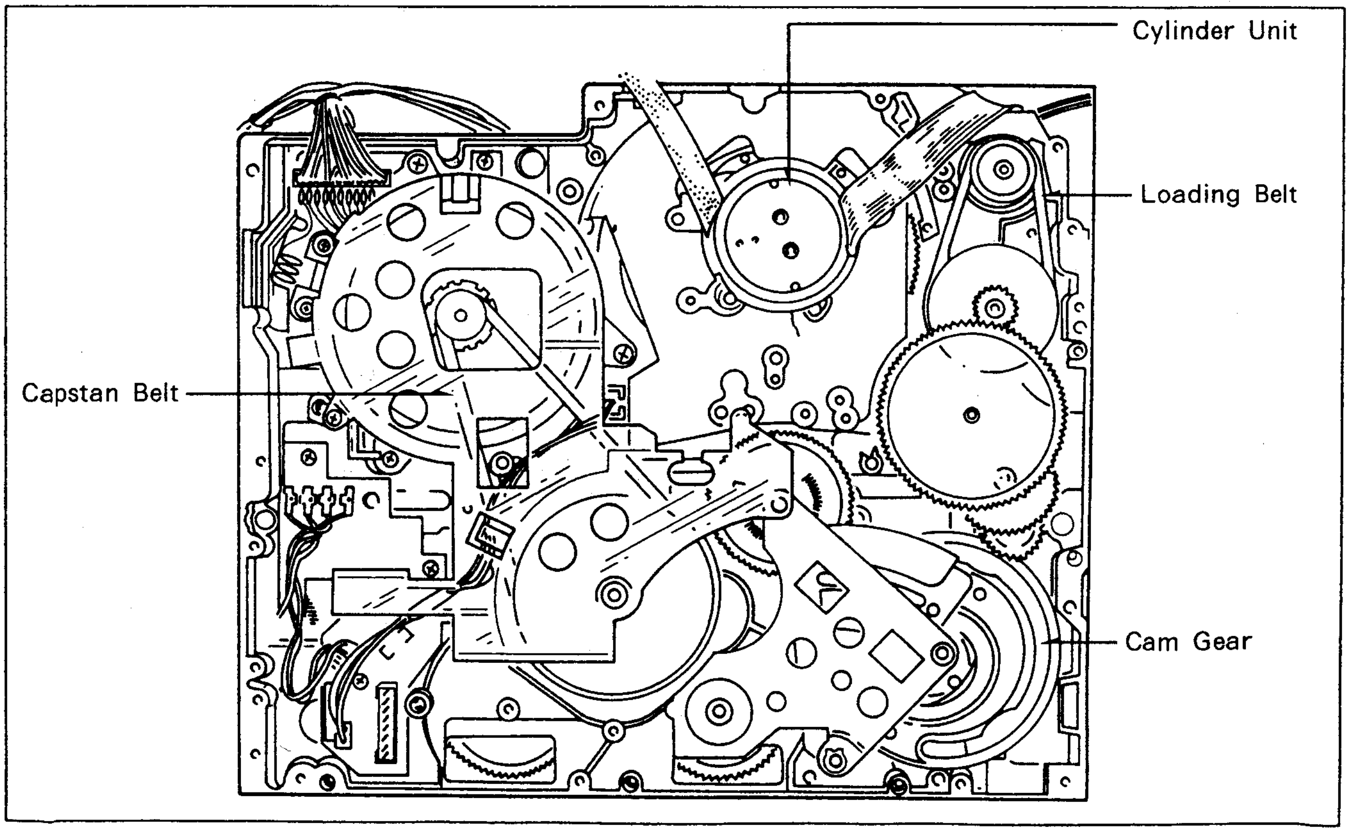
✻ NOTE:

Symbol	Maintenance	Requirement	Remark
●	Cleaning	Ethyl-alcohol or Cleaning Liquid (Purchase locally)	Wipe dirt from the parts using soft cloth impregnated with Ethyl-Alcohol. Note: When cleaning rubber parts, avoid using excessive alcohol since it may accelerate deterioration of these parts. After cleaning with alcohol, wipe the alcohol quickly and thoroughly.
◎	Replacement	————	————
◉	Replacement (in case)	————	If the regular cleaning has not been done.
△	Lubrication	Hydro HV100 Oil (VFK0131)	Supply one or two drops of oil.
■	Greasing	Molytne Grease (MOR265)	Wipe the old grease and apply new grease.

2-2. MECHANICAL PARTS LOCATION


Cylinder Unit
Take-up Loading Base
Loading Motor
Loading Guide (S) 1
A/C Head Unit
FE Head
Capstan Rotor Unit (Shaft) Capstan Housing
Loading Guide (S) 2
Tension Band Unit
Pressure Roller Arm Unit
Supply Reel Table
Take-up Reel Table
Soft Brake (T) Unit
Brake (L) Unit

TOP VIEW


Cylinder Unit
Loading Belt
Capstan Belt
Cam Gear

BOTTOM VIEW

2-3. DETAILED DISSMBLY METHOD

1. REMOVAL OF SHOULDED PAD/LENS HOOD

(1) Remove the 4 screws(A).
(2) Pull the shoulder PAD.
(3) Remove the Lens Hood.(By roatating counter-clockwise.)

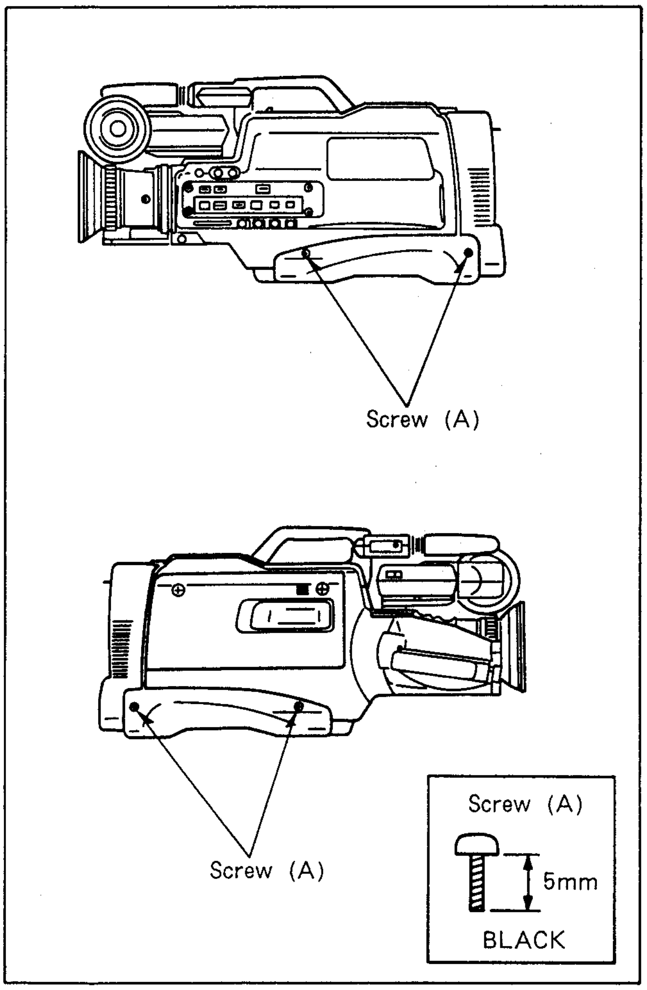

Screw (A)
Screw (A)
Screw (A)
5mm
BLACK

Fig. D1

2. REMOVAL OF CASSETTE COVER

(1) Remove 2 Screws(B).
(2) Pull the Cassette Cover straight up to remove.

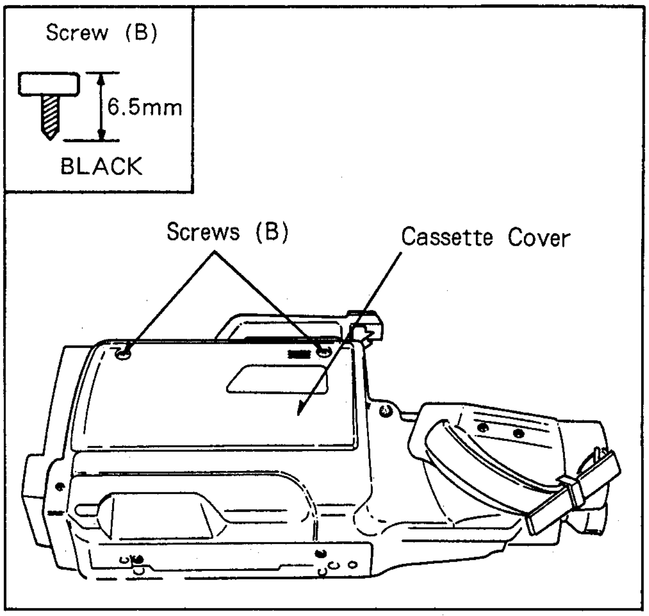

Screw (B)
6.5mm
BLACK
Screws (B)
Cassette Cover

Fig. D2

3. REMOVAL OF THE MIC UNIT

(1) **Remove 2 Screws (C), (D) and (E).**
(2) Slide the MIC Unit in the direction shown by the arrow.
(3) Disconnect the connector on the MIC Unit.

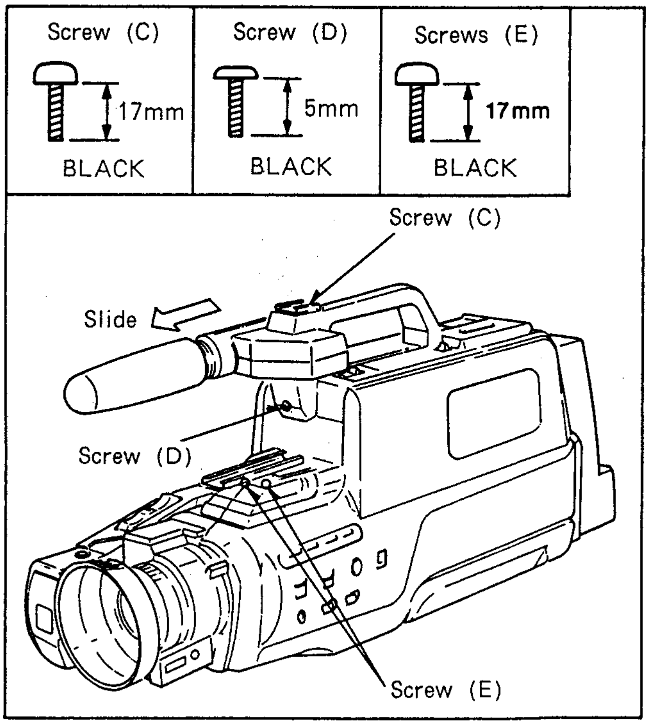
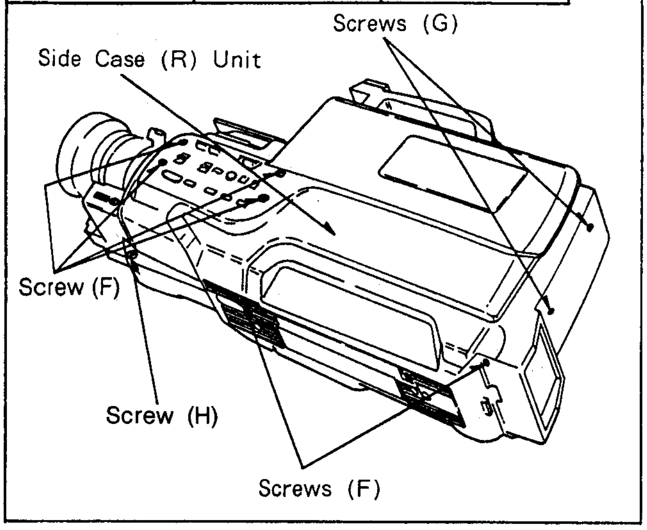

Screw (C)
17mm
BLACK
Screw (D)
5mm
BLACK
Screws (E)
17mm
BLACK
Screw (C)
Slide
Screw (D)
Screw (E)

Fig. D3

4. REMOVAL OF SIDE CASE(R) UNIT

(1) Remove 2 Screws(E) shown in Fig.D3.
(2) Remove 7 Screws(F), 2 Screws(G) 1 Screw(H).
(3) Lift the side case(R) unit slightly.
(4) Disconnect the connector P4501 from Main C.B.A.

Screw (F)	Screw (G)	Screw (H)
5mm	5mm	10mm
BLACK	BLACK	BLACK



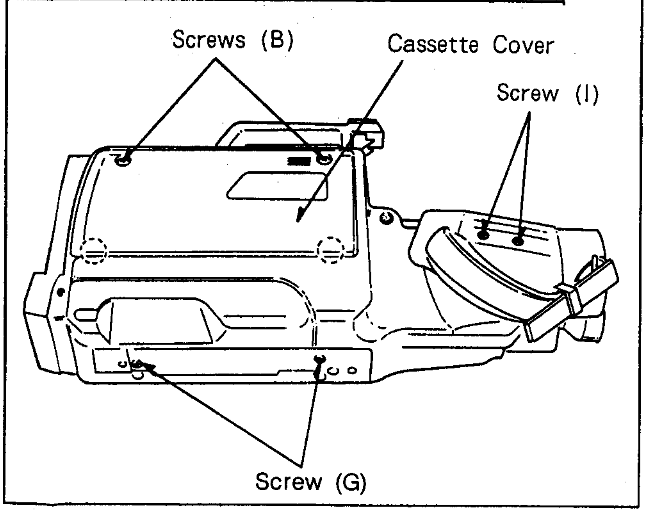
Screws (G)
Side Case (R) Unit
Screw (F)
Screw (H)
Screws (F)

Fig. D4

5. REMOVAL OF SIDE CASE (L) UNIT

(1) Remove Screw(B), 2 Screws(G), 2 Screws(I) shown in Fig.D5.
(2) Lift the Side Case(L) Unit slightly.
Then Disconnect the connector on Main C.B.A. and Process C.B.A..(EVF, TALLY, ZOOM)

Screw (B)	Screw (G)	Screws (I)
6.5mm	5mm	27mm
BLACK	BLACK	BLACK

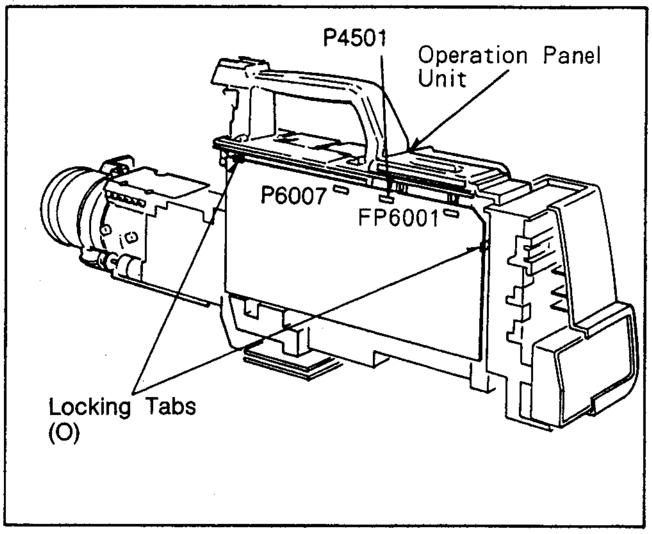


Screws (B)
Cassette Cover
Screw (I)
Screw (G)

Fig. D5

6. REMOVAL OF OPERATION PANEL UNIT

(1) Disconnect the Flexible Connector FP6001 on Main C.B.A..

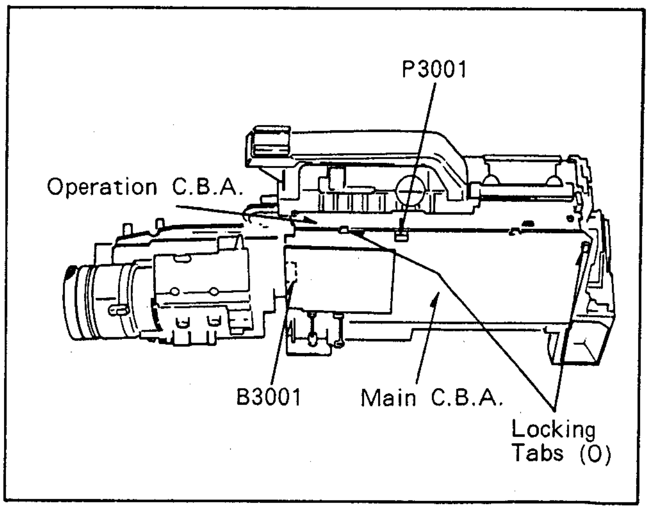


P4501
Operation Panel Unit
P6007
FP6001
Locking Tabs (O)

Fig. D6

7. OPENING OF MAIN C.B.A.

(1) Unsnap 2 Locking Tabs(O).
(2) Disconnect the Connector P3001(CHRA:GENE), and B3001.
(3) Open the Main C.B.A..



P3001
Operation C.B.A.
B3001
Main C.B.A.
Locking Tabs (O)

Fig. D7

8. REMOVAL OF CAMERA C.B.A.

(1) Remove Screw(J).
(2) Disconnect the Connector B301 and Flexible Connector FP701.
(3) Lift up the camera C.B.A. slightly and then Remove.

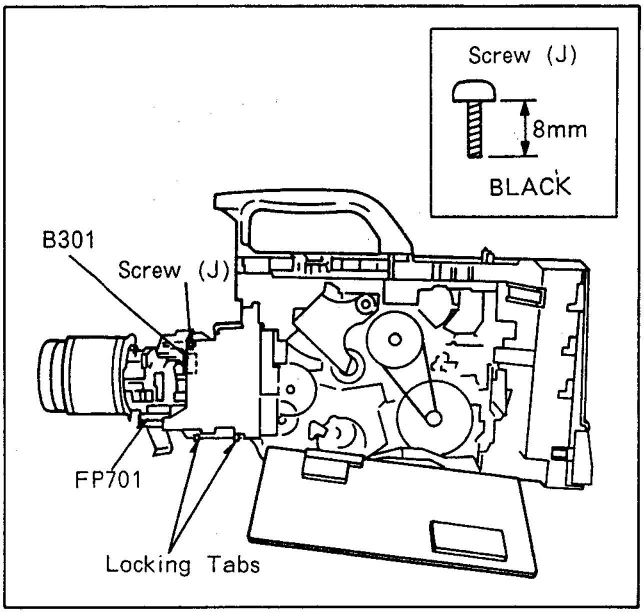

Screw (J)
8mm
BLACK
B301
Screw (J)
FP701
Locking Tabs

Fig. D8

9. REMOVAL OF LENS UNIT

(1) Remove 3 Screws(K).

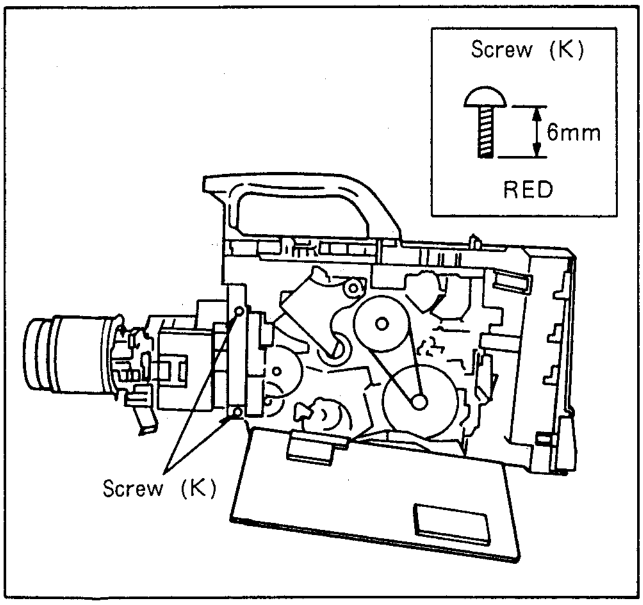

Screw (K)
6mm
RED
Screw (K)

Fig. D9

10. REMOVAL OF SENSOR C.B.A.

(1) Disconnect the Connector B202.
(2) Remove 2 Screw(L).

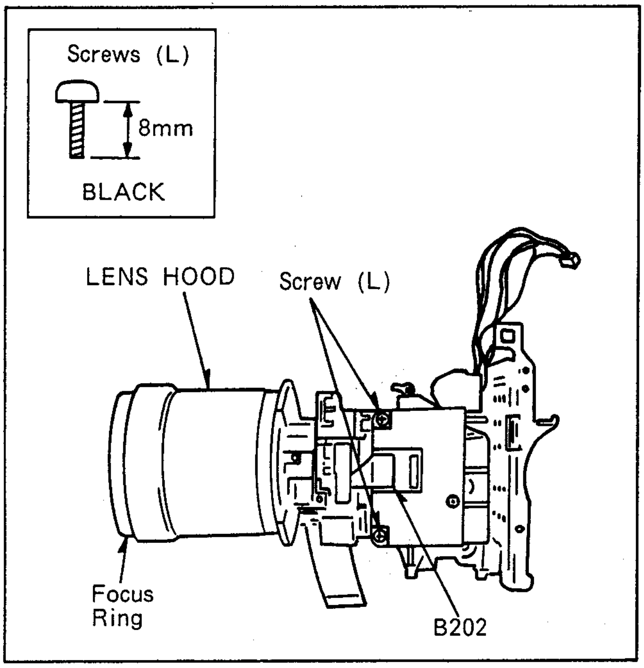

Screws (L)
8mm
BLACK
LENS HOOD
Screw (L)
Focus Ring
B202

Fig. D10

11. REMOVAL OF THE LENS COVER

(1) Remove 2 Screws(M).

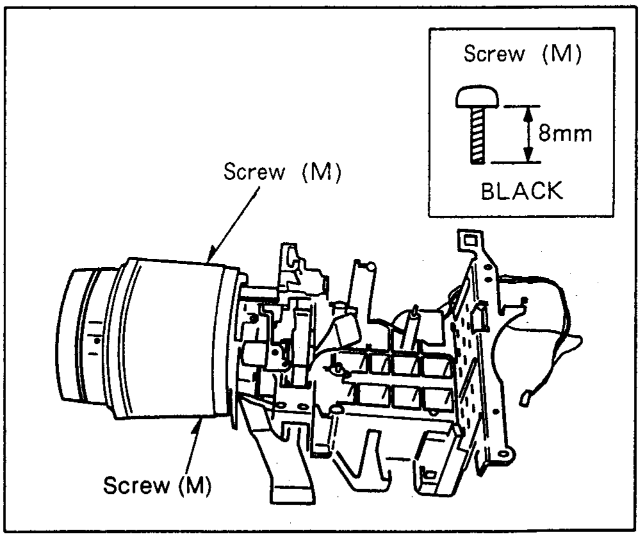

Screw (M)
8mm
BLACK
Screw (M)
Screw (M)

Fig. D11

12. REMOVAL OF THE LENS UNIT

(1) Remove 3 Screws(N).

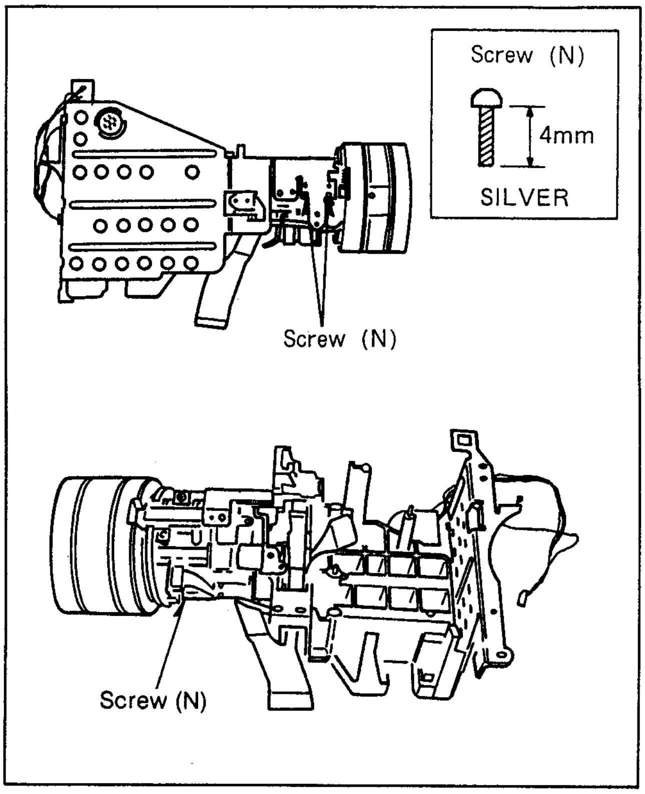

Screw (N)
4mm
SILVER
Screw (N)
Screw (N)

Fig. D12

13. REMOVAL OF EVF UNIT

(1) Remove 2 Screws (O).

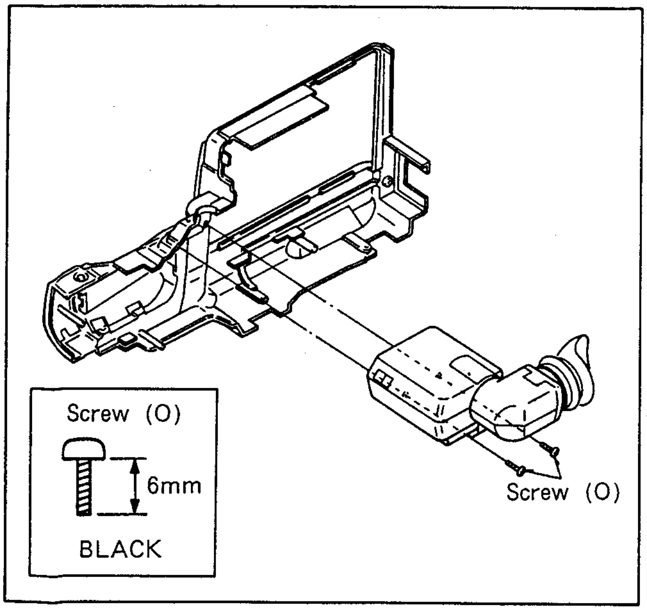

Screw (O)
6mm
BLACK
Screw (O)

Fig. D13

14. DISASSEMBLY OF E.V.F. UNIT

(1) Remove 3 Screws (P) on the bottom of the E.V.F. Unit and then remove the Bottom Case.

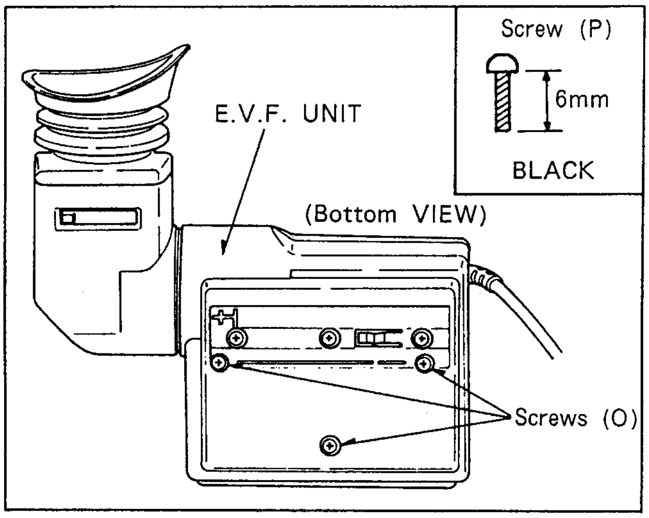

Screw (P)
6mm
BLACK
E.V.F. UNIT
(Bottom VIEW)
Screws (O)

Fig. D14

(2) Lift the CRT Assembly up shown in Fig.D23.

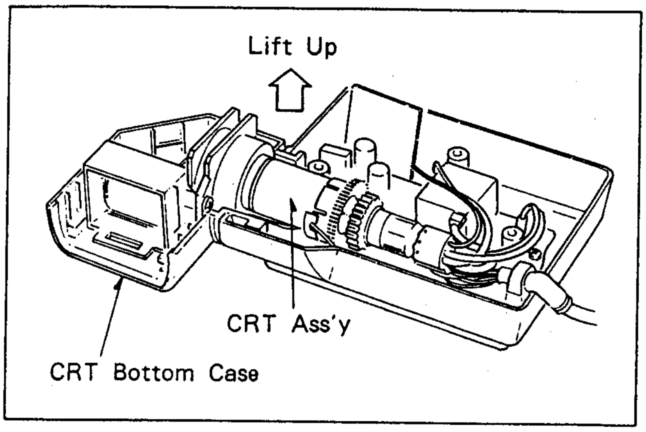

Lift Up
CRT Ass'y
CRT Bottom Case

Fig. D15

(3) Rotate Nut(v) and then pull DY Assembly in the direction shown in Fig.D24 to remove it. Then the CRT can be replaced.
(4) For re-installation, reverse the above steps.

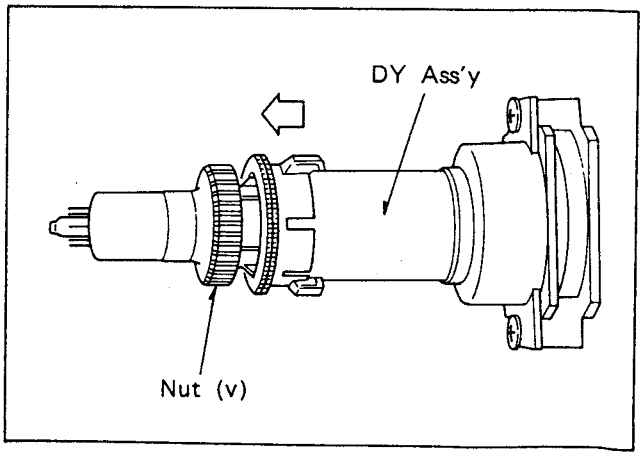

DY Ass'y
Nut (v)

Fig. D16.

Battery Replacement

VL2020 size Button Type Battery is necessary for storing the date, time and selected tape speed in the memory, when the Movie Camera is turned off.

How to Exchange the Button Tupe Battery

Use only a "VL2020" size Button Type Battery.
The VL2020 is manufactrued by Panasonic only.

CAUTIONS FOR BATTERY REPLACEMENT

Load the new battery with its polarities (+ and −) correctly aligned.

Remove the spent battery immediately and dispose of it.

Do not try to short-circuit, heat the battery and do not throw it into a fire.

Keep the button-type battery out of reach of children.
If a battery has been swallowed, consult a doctor immediately.

Do not grasp the button-type battery with metallic tweezers because this could short-circuit it.

"THE LITHIUM BATTERY IS A CRITICAL COMPONENT (TYPE NUMBER VL2020 MANUFACTURED BY PANASONIC).

IT MUST NEVER BE SUBJECTED TO EXCESSIVE HEAT OR DISCHARGE. IT MUST THEREFORE ONLY BE FITTED IN EQUIPMENT DESIGNED SPECIFICALLY FOR ITS USE.

REPLACEMENT BATTERIES MUST BE OF THE SAME TYPE AND MANUFACTURER. THEY MUST BE FITTED IN THE SAME MANNER AND LOCATION AS THE ORIGINAL BATTERY, WITH THE CORRECT POLARITY CONNECTIONS OBSERVED.

DO NOT ATTEMPT TO RE-CHARGE THE OLD BATTERY OR RE-USE IT FOR ANY OTHER PURPOSE. IT SHOULD BE DISPOSED OF IN WASTE PRODUCTS DESTINED FOR BURIAL RATHER THEN INCINERATION".

2-4. REPLACEMENT PROCEDURES

2-4-1. PROCEDURE OF CLEANING OF CYLINDER UNIT

1. Position the video head to clean and hold the upper cylinder to keep it from turning while cleaning.
2. Gently rub the video head in direction of tape travel with the Head Cleaning Stick.
3. Repeat for the other three heads.

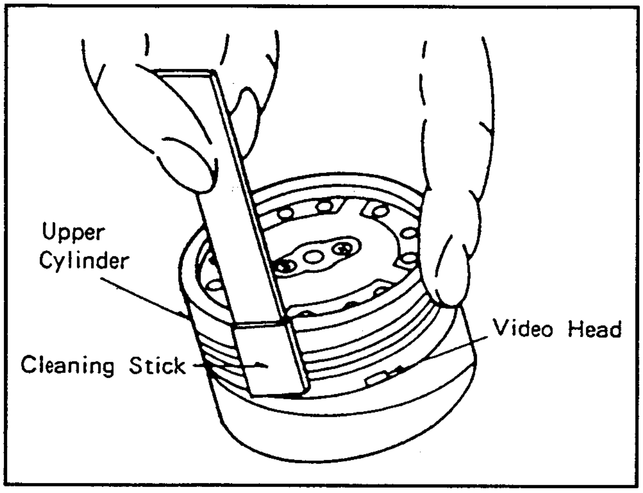


Figure R1

2-4-2. REPLACEMENT OF THE CYLINDER UNIT

Note: Dissaembly method is refer to Section 2-3

<Preparation>

1. Remove of Side Case(L) and cassette cover.
2. Remove of Side Case(R).
3. Open the Main C.B.A.

1. Remove screw (A) and remove the earth plate unit.

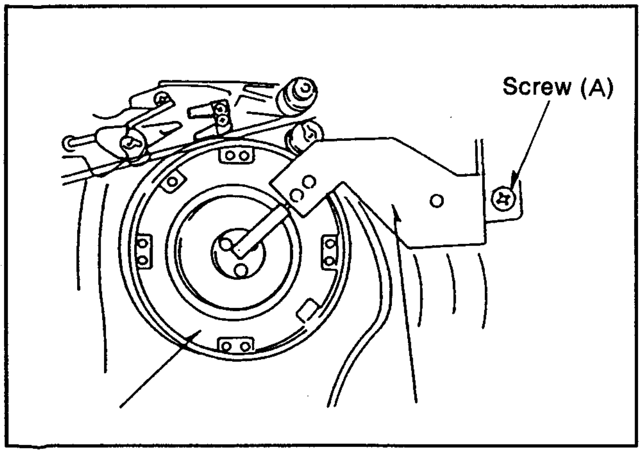


Figure R2

2. Disconnect connector FP2101 on the Main C.B.A.
3. Remove the 3 screws (B) and disconnect the connector.
4. Take out the Cylinder unit carefully.

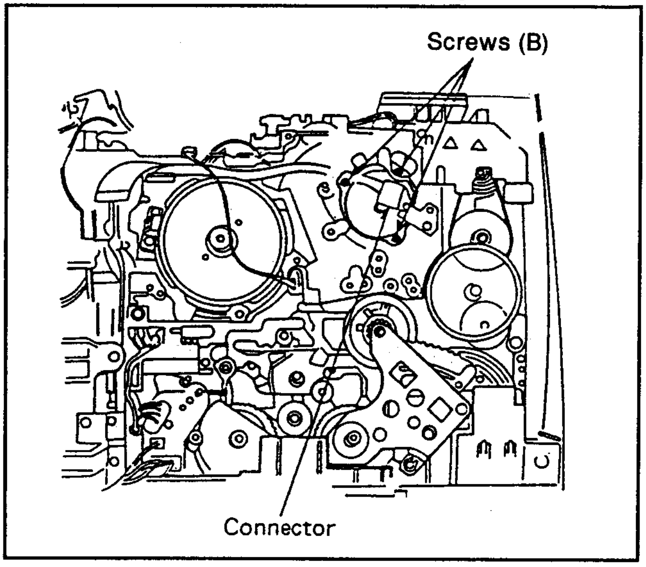


Figure R3

Note: Since there is very little clearance between the Cylinder Unit and the chassis, remove the Cylinder Unit carefully.

5. Reinstall the new Cylinder Unit, tighten the 3 screws and reconnect the connector.

Note:
1. Gently rub the video head in direction of tape travel with Head cleaning stick.
2. After replacement, confirm the performance.
   If any further maintenance is required, perform "TAPE INTER-CHANGE ABILITY ADJUSTMENT".

2-4-3. REPLACEMENT OF CAPSTAN MOTOR UNIT

- * Equipment required:
  Reel Table Height Gauge (VFK0190)
- * Specification ... 0.5 ± 0.05mm

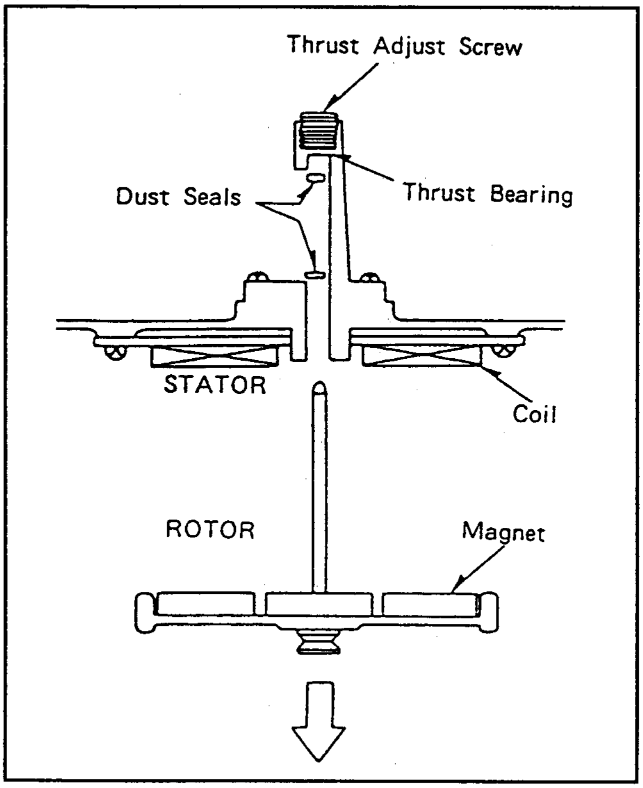

Thrust Adjust Screw
Dust Seals
Thrust Bearing
STATOR
Coil
ROTOR
Magnet

Figure R4

1. Remove 2 screws and take belt cover off. After that remove the capstan belt.
2. Tighten the Thrust Adjust Screw fully and pull the capstan rotor.

Note: In this time pay attention not to lose two pieces of Dust Seal.

3. Replace the new rotor with two pieces of Dust Seal.

Note:
1. Pay attention to the replaced new rotor not to shock because of magnet absorption.
   So hold the rotor firmly and replace it carefully.
2. In this replacement, do not touch the Capstan shaft with any hard material like drivers or tweezers. To prevent scratches and possible tape damage.

4. After replacement wipe off the Capstan shaft to remove oil, grease or dust.
5. Turn Thrust Adjust Screw clockwise till the rotor is just separating from the stator.
6. Turn Thrust Adjust Screw clockwise to another 180 degrees from above position

Note: If the Thrust Adjust Screw is fully opened, you have to pay attention not to lose Thrust Bearing.
When it is set, confirm that the direction of Thrust Bearing is correct as shown below.

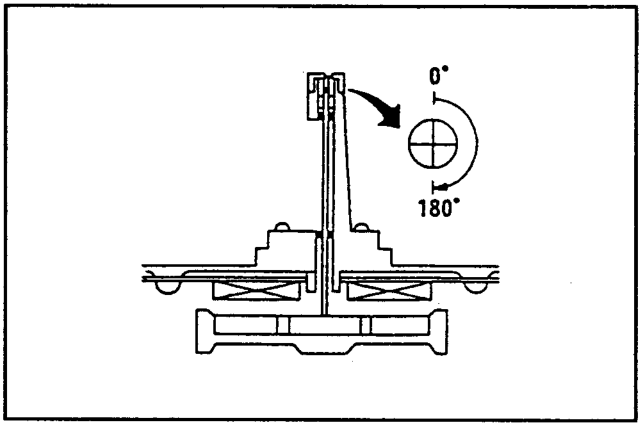


Figure R5

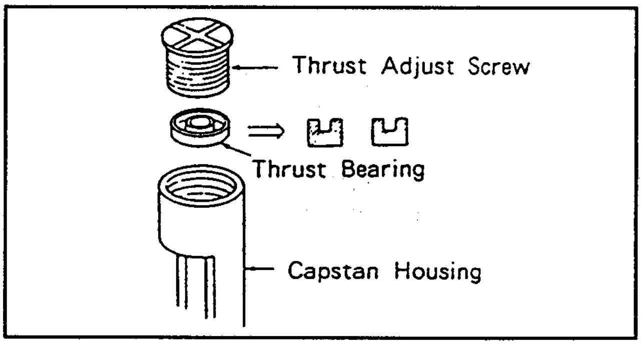

Thrust Adjust Screw
Thrust Bearing
Capstan Housing

Figure R6

2-4-4. REPLACEMENT OF TENSION BAND

1. Remove the cassette compartment.
2. Remove retaining ring and take out the Rew Arm (A) Unit.
3. Remove retaining ring and washer on the soft breake lever S unit.
4. Remove retaining ring and a snap washer and take out the tension Band Unit.

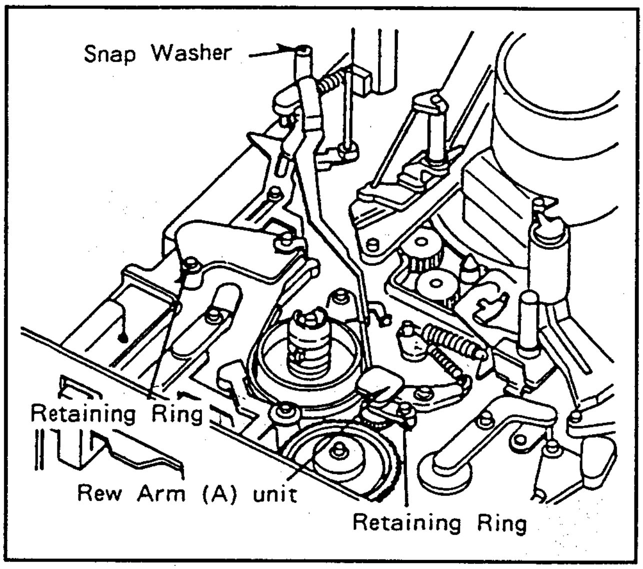

Snap Washer
Retaining Ring
Rew Arm (A) unit
Retaining Ring

Figure R7

5. Remove screw and remove the tension band from the band release arm.
6. Remove retaining ring and remove tension band from tension arm unit.

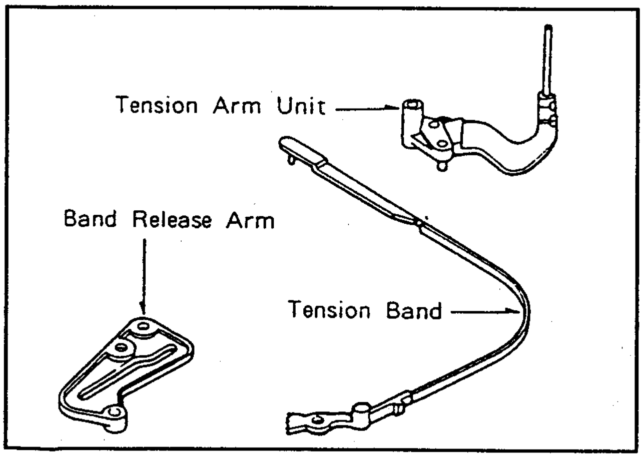

Tension Arm Unit
Band Release Arm
Tension Band

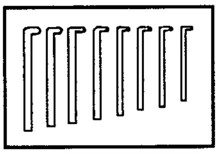
Figure R8

7. Replace the Tension Band by reversing the steps shown above.
8. After replacement, the Tension Post position and Back Tension Adjustment must be confirmed. (refer to step 6-3-13, 6-3-14)

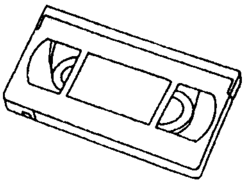
2-5. MECHANICAL ADJUSTMENT PROCEDURES

2-5-1. SERVICING FIXTURES & TOOLS

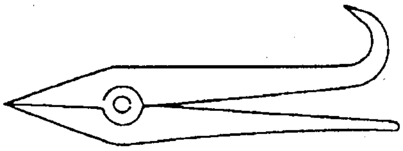
VFK0326 ; Hex. Wrench Set
(0.7, 0.9, 1.2, 1.5, 1.6, 2, 2.4, 3 mm)



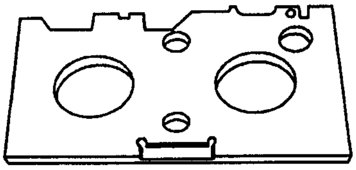
VFM8080HQFP : VHS Alignment Tape



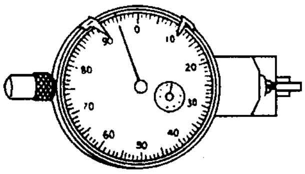
VFK0335 ; Retaining Ring Remover
(3mm/4mm)



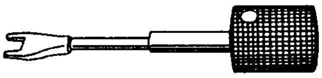
VFK0191 ; Post Adjustment Plate



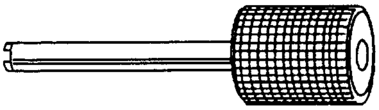
VFK0190 ; Reel Table Height Fixture



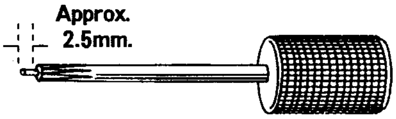
VFK0328 ; H-Position Adj. Screwdriver



VFK0329 ; Post Adj. Screwdriver

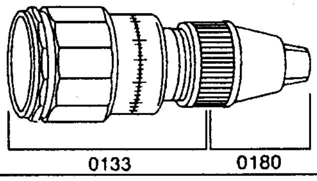


VFK0157 ; Fine Adj. Screwdriver

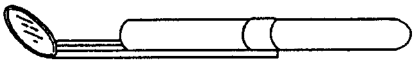


Grind the top portion approximately

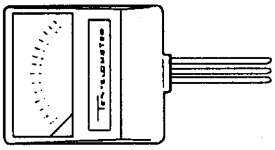
VFK0133 ; Dial Torque Gauge
VFK0134 ; Adaptor for VFK0133
VFK0180 ; Plastic Clamper Only



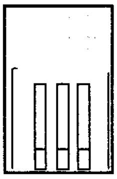
VFK0948 ; Check Light



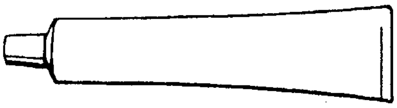
VFK0132 ; Back Tension Meter
(Tentelometer, Made in U.S.A)



VFK27 ; Head Cleaning Stick



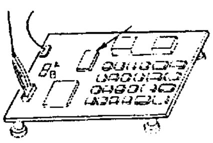
MOR265 ; Morlytone Grease



High Quality Machine Oil
< Purchase Locally >
(Reel Shaft, Capstan Shaft etc.)

Cleaning Liquid
(Freon, TF, Alchol)
< Purchase Locally >
(Tape Tronsport Rubber Parts etc.)

VFK0644 ; EVR Fixture
***ROM IC VFK0701ROM11**



2-5-2. ADJUSTMENT FLOW CHART

In order to gain access to the items needing service this flow chart describes the order of steps for adjusting the tape guide posts and A/C head.

AFTER REINSTALLING THE P1 POST, OR IF THE P1 POST HAS BEEN TURNED EXCESSIVELY.

2-5-3. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the tape guide post P1 only.

2-5-4. CONFIRMATION OF THE TAPE TRANSPORT.

2-5-7. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING THE CYLINDER UNIT

2-5-7. CONFIRMATION OF THE ENVELOPE OUTPUT.

2-5-11. ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

* **Note:**
Do not change the height of the P1 and P4 posts and position of the A/C head.

AFTER REINSTALLING ALL POSTS OR IF ALL POSTS HAVE BEEN TURNED EXTREMELY.

2-5-3. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHT

2-5-4. CONFIRMATION OF THE TAPE TRANSPORT.

2-5-5. ADJUSTMENT OF THE PULL-OUT POST (P5 POST) HEIGHT.

2-5-6. CONFIRMATION OF THE A/C HEAD TILT.

2-5-7. CONFIRMATION OF THE ENVELOPE OUTPUT.

AFTER REINSTALLING THE A/C HEAD

2-5-6. CONFIRMATION OF THE A/C HEAD TILT.

* **Note:**
Do not change the height of P4 post.

2-5-8. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT.

2-5-9. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION

2-5-10. ADJUSTMENT OF THE A/C HEAD AZIMUTH.

2-5-11. ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

AFTER REINSTALLING THE P4 POST, OR IF THE P4 POST HAS BEEN TURNED EXCESSIVELY.

2-5-3. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the P4 post only.

2-5-4. CONFIRMATION OF THE TAPE TRANSPORT.

* **Note:**
Adjust the P4 post only.

2-5-6. CONFIRMATION OF THE A/C HEAD TILT.

2-5-7. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING THE PULL-OUT POST (P5 POST)

2-5-5. ADJUSTMENT OF THE PULL-OUT POST (P5 POST).

* **Note:**
Do not readjust any other post.

2-5-3. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHT (P1,P2,P3 AND P4)

- Equipment Required:
  Post Adjustment Plate ..... VFK0191 or VFK1012
  Reel Table Height Gauge VFK0190
  Nut Driver (Purchase locally)
  Post Adjustment Screwdriver VFK0329

1. Remove the cassette compartment from the mechanical chassis.
2. Place the Post Adjustment Plate over the reel tables. (Figure M1) Confirm that the Post Adjustment Plate is firmly seated.

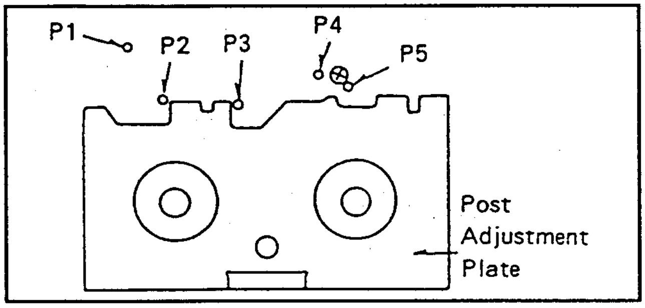


Figure M1

3. Lower all 4 tape guide posts so that the lower tape guide on each post is below the top surface of the adjustment plate.
   Use the post Adjustment screwdriver to lower posts P2 and P3, and the Nut Driver to lower Posts P1, P4 and P5.
4. Place the Reel Table Height Gauge on the Post Adjustment Plate and lower the scraper so that it touches the plate (Figure M2).

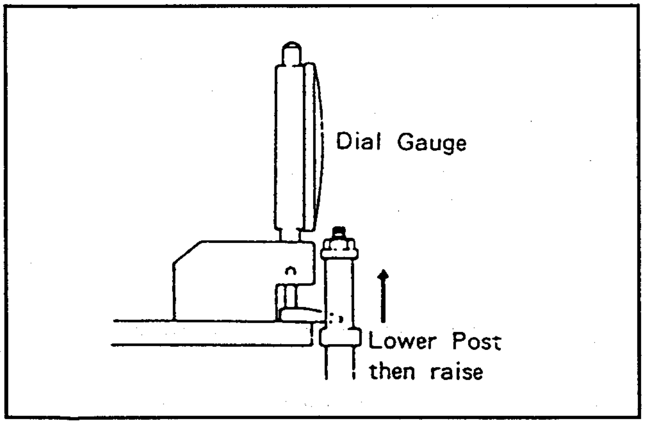


Figure M2

5. Place the side of the scraper against the each post as shown in Figure M3, set the gauge to zero, then slowly raise the post until the lower tape guide just touches the bottom of the scraper. Use the gauge to determine the exact point at which the lower tape guide touches the scraper. (Figure M3).

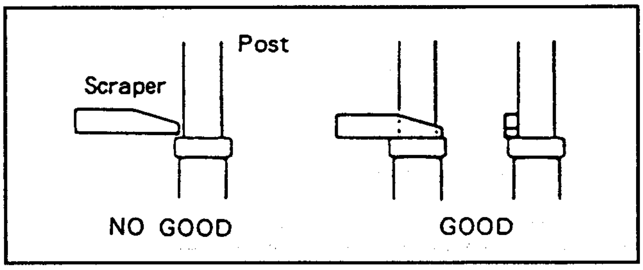


Figure M3

2-5-4. CONFIRMATION OF THE TAPE TRANSPORT (TAPE GUIDE POSTS)

Note:
1. The tape guide posts have been precisely adjusted at the factory. Therefore, normally do not change the height of P1, P4 and P5 posts. The following adjustment is required only when replacing the posts.
2. If curling is apparent proceed to the P4 post, wipe dirt from the pressure roller and capstan shaft using a soft cloth impregnated with Freon TF or cleaning liquid.
3. The adjustment of the post height is required only it one has been replaced.

- Equipment Required
  Post Adjustment Screwdriver VFK0329
  Check Light VFK0948
  Nut Driver (Purchase locally)

1. To prevent the alignment tape from being damaged, use a normal cassette tape for this procedure.
   Play back the normal cassette tape and confirm that the tape travels without any curling at the edges of all the posts by using the check light. (Figure M4 and Figure M5).

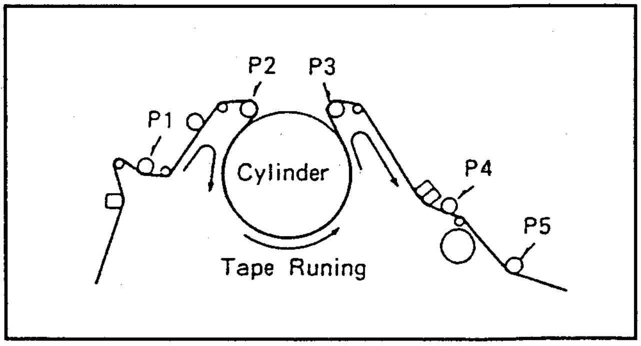


Figure M4

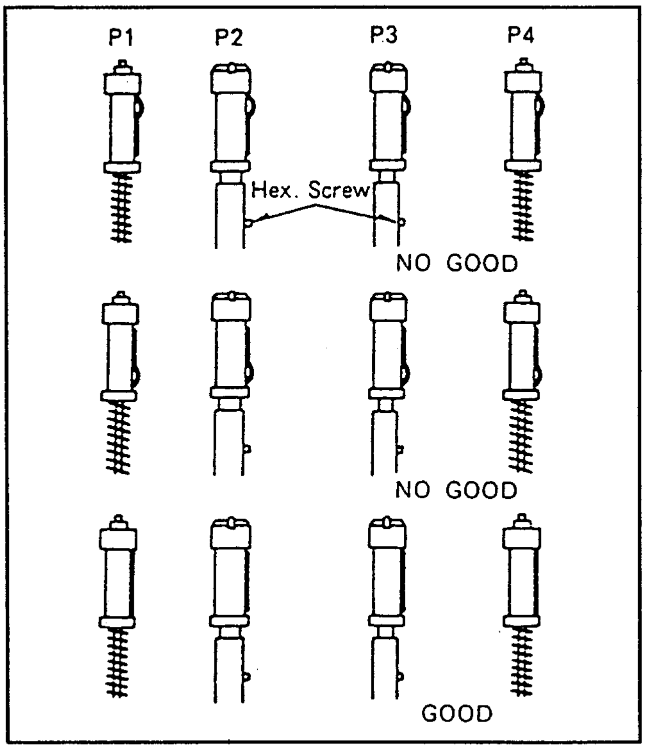


Figure M5

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver (posts P2 and P3) or the nut-driver (Posts P1 and P4)(Figure M4 and M5).
3. After adjusting the P4 post, adjustment of the pull-out post (P5) is required.
   (Refer to "ADJUSTMENT OF THE PULL-OUT POST HEIGHT".)
4. If the tape curling cannot be corrected by adjusting the tape guide posts, then adjustment of the A/C head tilt may be needed.

2-5-5. ADJUSTMENT OF THE PULL OUT POST (P5 POST) HEIGHT

Note: 1. This adjustment should be performed only after adjusting tape guide post P4 as the height of the pull-out post is based on the height of post P4.

* Tools and Equipment Required:
Post Adjustment Plate ..... VFK0191 or VFK1012
Reel Table Height Gauge VFK0190
Check Light VFK0948
Nut Driver (Purchase locally)

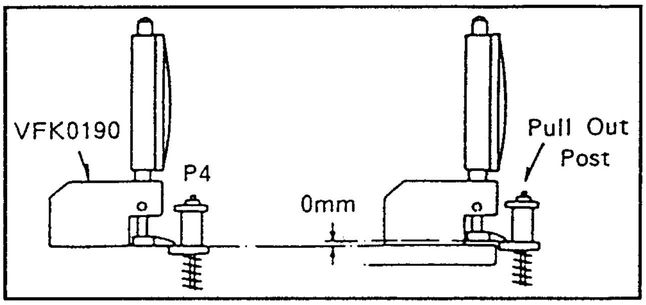


Figure M6

1. Remove the cassette compartment by removing 4 screws.
2. Place the Post Adjustment plate over the reel tables.
3. Place the Reel Table Height Gauge on the tape guide post P4, lower the scraper so that it touches the lower edges of P4, then set the gauge to zero ("0")(Figure M6).
4. Slightly lower the pull-out post by turning the nut on the post clockwise with the nut driver, and set the side of the scraper against the post as shown in Figure M7.
5. Slowly turn the nut on the post counterclockwise until the gauge reads 0mm (Figure M6).
6. Confirm there is no tape curling at P4 post during reverse mode by using the check light.
   If tape curling occurs, Go back to step 3.

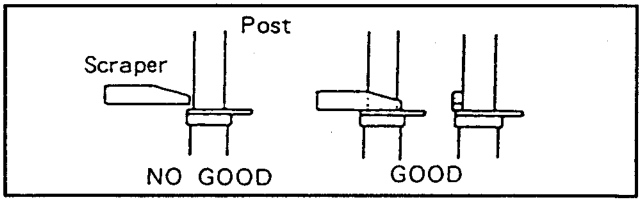


Figure M7

2-5-6. CONFIRMATION OF THE A/C HEAD TILT

Note: This procedure should be performed after replacing the A/C head and pressure roller, and adjusting the height of the tape guide post (P4).
(Refer to "COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHT").

* Tools and equipment Required:
Hex. Wrench Set VFK0326
Nut Driver (purchase locally)

1. Play back the beginning portion of T180 (NTSC) / E240 (PAL) blank cassette tape and confirm that the tape runs between lower and upper limiters of the P4 post. If there is waving or filling in the lower edge or top edge of the tape, correct the tilt of the A/C head by turning the screw located behind the A/C head (Figure M8).

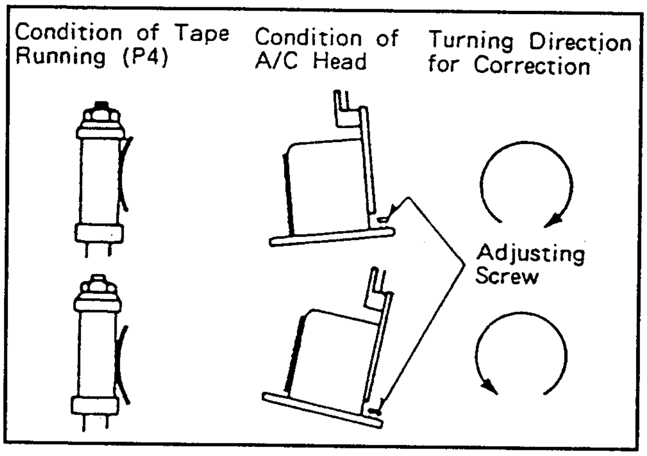

Condition of Tape Running (P4)
Condition of A/C Head
Turning Direction for Correction
Adjusting Screw

Figure M8

2. If the tape curling cannot be removed by adjusting the A/C head tilt, then readjustment of the height of the tape guide post (P4) may be needed.

Note:
1. The tape guide post (P4) has been precisely adjusted at the factory. Therefore, normally the tape guide post (P4) readjustment is not required to eliminate the tape curling.
2. After adjusting the A/C head tilt, the A/C head height adjustment is required.

2-5-7. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY)

Note: Before playing back the alignment tape, play back a normal cassette tape and confirm correct transport.
(Refer to "CONFIRMATION OF THE TAPE TRANSPORT".)

* Tools and Equipment Required:
Post Adjustment Screwdriver VFK0329
Alignment Tape VFM8080HQFP

1. Connect the scope to the output of the Head Amp (CL3003) on the MAIN C.B.A. and TP6201 on the same C.B.A. to External trigger of the scope.
2. Play back the monoscope portion of the alignment tape.
3. Press the Tracking Control buttons and adjust for maximum RF envelope.
4. If the RF envelope appears like example "A" or "B" in Figure M9, then adjustment of tape guide post (P2: Entrance) is necessary.
5. Adjust the tape guide post (P2) with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown "C" in Figure M9. (See Figure M12 also).

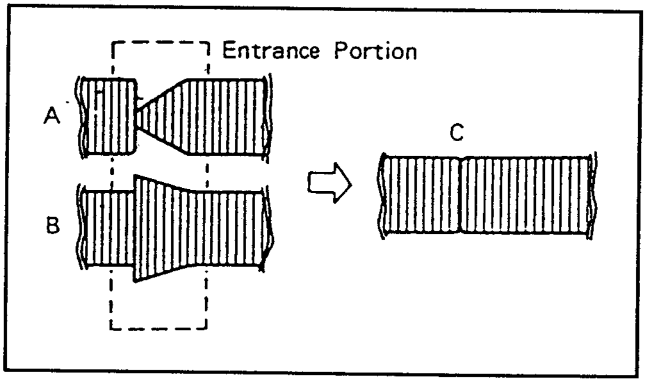


Figure M9

6. If the RF envelope appears like example "D" or "E" in Figure M10, then adjustment of the tape guide post (P3: Exit) is necessary.
7. Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in "F" in Figure M10.

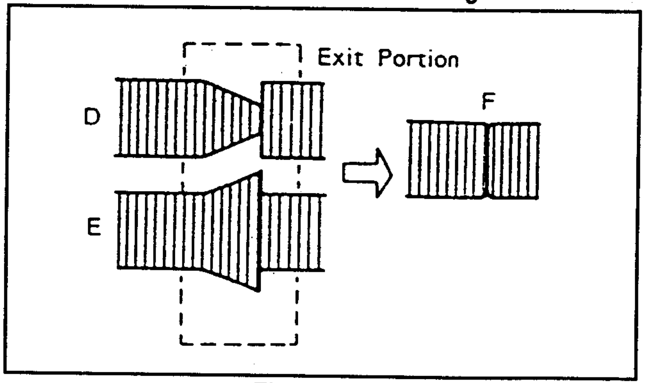


Figure M10

8. Set the Tracking Control buttons from one end postion to another end.
The variation of RF envelope should be nearly parallel as shown in Figure M11.
9. Press the Tracking buttons and adjust for maximum RF envelope.
If the RF envelope does not meet these specs, V1/V 0.7, V2/V 0.8, then repeat steps 1-9 of item 3-2-5. again (Figure M13).

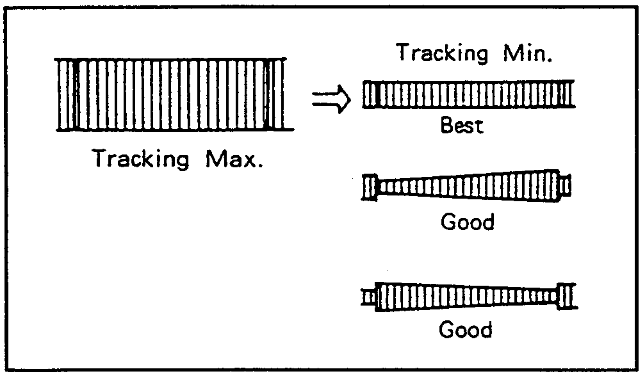

Tracking Min.
Best
Tracking Max.
Good
Good

Fig M11

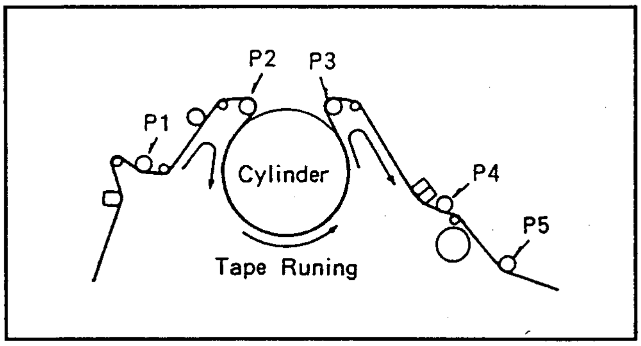

P2
P3
P1
Cylinder
P4
P5
Tape Runing

Figure M12

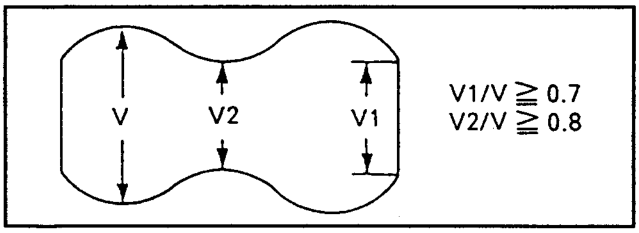

V
V2
V1
V1/V ≧ 0.7
V2/V ≧ 0.8

Figure M13

10. Set the Tracking buttons form one end to another end again, then set back to the Fix position by pressing both tracking buttons simultaneously or switching the power off and on again.
    At the Fix position, the RF envelope waveform should be at maximum. If it is not at maximum then "ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION" is necessary. (Refer to "FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION".)

2-5-8. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT

Note: This procedure should be performed only when the A/C Head is replaced.

* Tools and Equipment Required:
Check Light VFK0948
Nut Driver (Purchase locally)

1. Looking at the lower edge of the control head within the tape running, ensure that lower edge of the tape runs along 0.25mm in from the lower edge of the control head. If it doesn't slightly turn the nut (A) in either direction to correct clockwise to lower the head and counterclockwise to raise it.

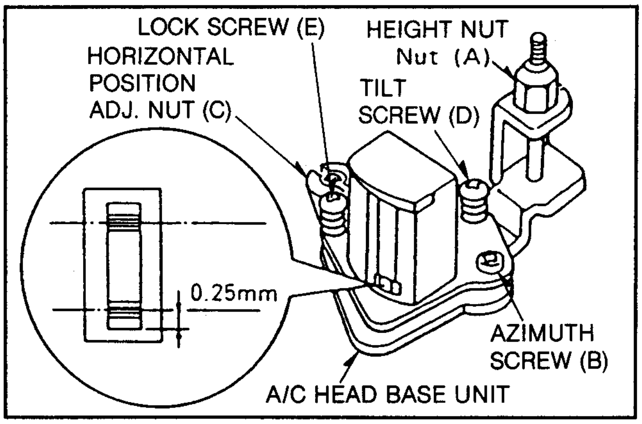

LOCK SCREW (E)
HEIGHT NUT
Nut (A)
HORIZONTAL POSITION ADJ. NUT (C)
TILT SCREW (D)
0.25mm
AZIMUTH SCREW (B)
A/C HEAD BASE UNIT

Figure M14

2-5-9. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION

Note: This procedure should be performed only when the A/C head is replaced.

1. Connect the scope CH1 to output of the Head Amp (CL3003) on the Main C.B.A. and CH2 to audio output.
2. Play back the alignment tape [the portion for the A/C head horizontal adjustment (coarse)].
3. Set the tracking control buttons to Fix position by pressing both tracking buttons simultaneously.
4. Adjust the adjustment nut (C) so that the phase of audio drop-out and RF video drop-out becomes as close as possible.
5. Adjust the adjustment nut (C) so that the center of RF envelope level becomes maximum.
6. Confirm the phase of RF video drop-out and audio drop-out should be less than 15 msec.

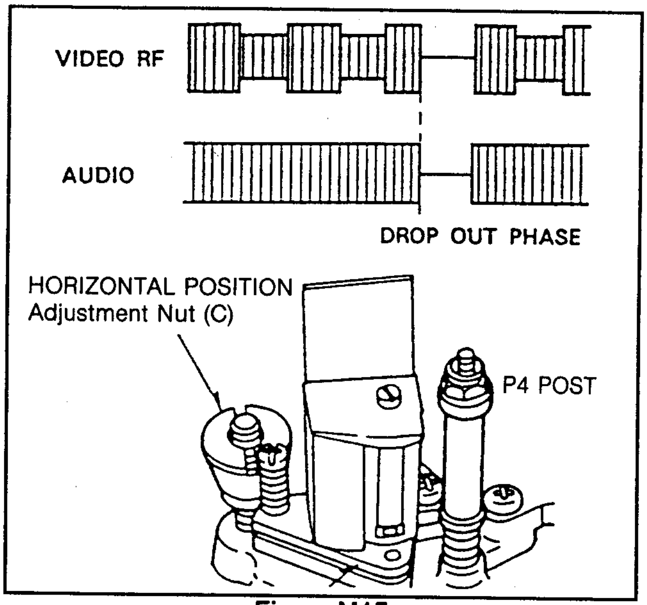


Figure M15

2-5-10. ADJUSTMENT OF THE A/C HEAD TILT AND AZIMUTH

Note: This procedure should be performed only when the A/C Head is replaced and posts height are readjusted.

* Tools and Equipment Required:
Nut Driver (Purchase locally)
Alignment Tape VFM8080HQFP

1. Connect the scope to the audio output.
2. Play back the alignment tape (2nd portion (Normal Audio 6KHz)).
3. Adjust the screw (B) so that the audio output level becoms maximum. (FigureM16)
4. Then adjust the net (A) so that the audio output level maximum.

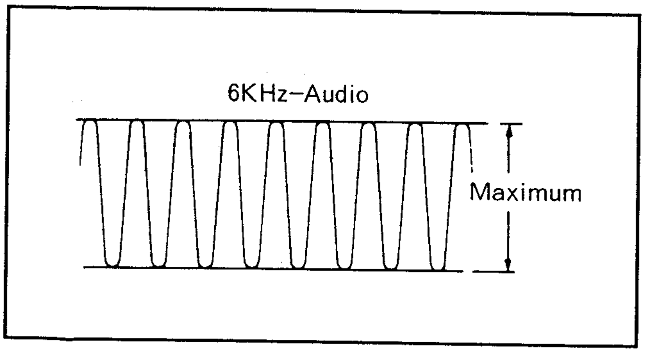


Figure M16

2-5-11. ADJUSTMENT OF A/C HEAD HORIZONTAL POSITION

Note: This procedure should be performed only when the A/C head is replaced and after performing the tape interchangeability adjustment.

* Tools and Equipment Required:
H. Position Adj. Fixture VFK0328
Alignment Tape VMF8080HQFP

1. Set the Tracking Control buttons to Fix position.
2. Connect the scope CH1 to TP3001 on the Main C.B.A., and TP4001 on the Audio C.B.A. to Ext trigger the scope.
3. Play back the Monoscope pattern of the alignment tape.
4. Adjust the adjustment nut so that the RF envelope output level becomes is maximized at the Fix position (Figure M17).
5. Set the Tracking buttons from one end position to another end then back to Fix position by pressing both tracking buttons simultaneously. Confirm that the RF envelope output level is maximized at the Fixed position (Figure M18).

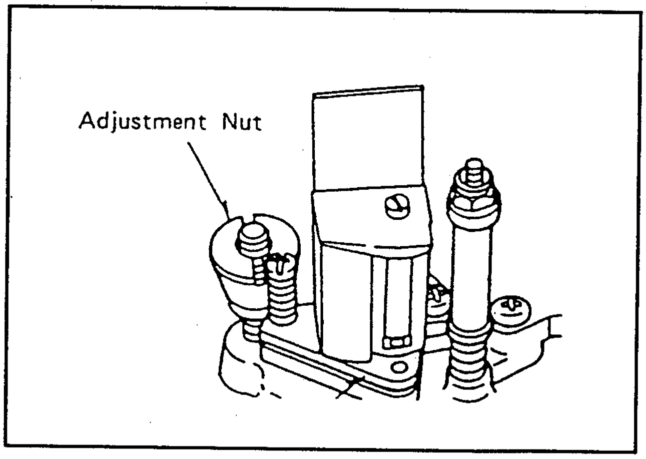


Figure M17

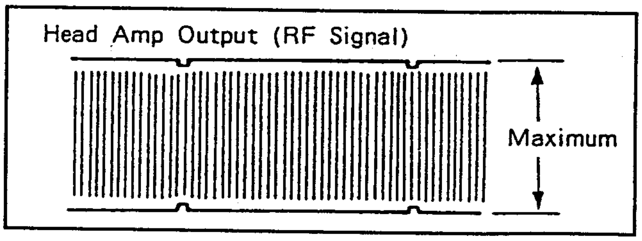


Figure M18

2-5-12. CONFIRMATION OF BRAKE TORQUE

- Equipment Required:
  Dial Torque Gauge VFK0133
  Adaptor for Gauge VFK0134
- Specification: ----- See spec table (Figure M19)

1. Remove the cassette compartment by unscrewing 4 screws.
2. Attach the adaptor to the torque gauge and place the unit in STOP mode.
3. Place the torque gause on the reel table. The weight of gauge should not rest on the reel table.

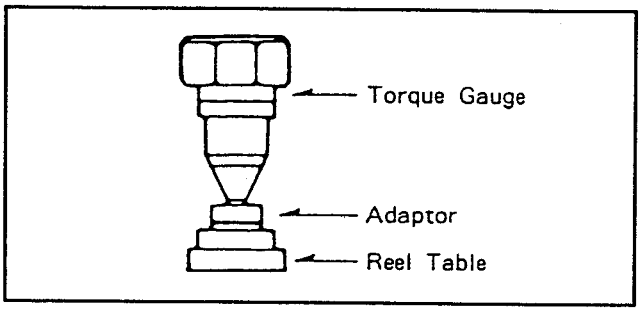
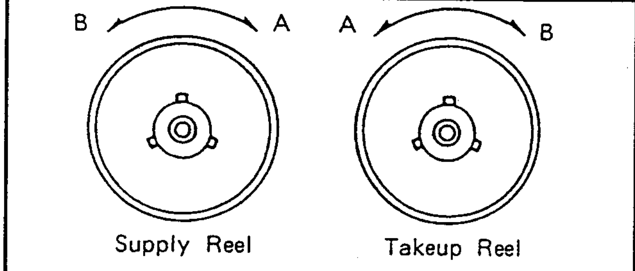

Torque Gauge
Adaptor
Reel Table

Figure M19

4. Turn torque gauge in either direction indicated in the Figure M19, and read the gauge when the brake begins slipping.

Note: If proper brake torque can not be obtained, check both take-up and supply clutch gear.


B
A
A
B
Supply Reel
Takeup Reel

	A	B
Takeup	28+–8g–cm	28+–8g–cm
Supply	28+–8g–cm	28+–8g–cm.

Figure M20

2-5-13. TENSION POST POSITION ADJUSTMENT

- Specification: ----- 2.4mm ~ 2.9mm

1. Remove the Cassette Up unit by removing 4 screws. (Refer to the disassembly procedures titled in Removal of the Cassette Up Unit). Place the unit in Play mode by rotating Drive Gear (A) clockwise as shown below.

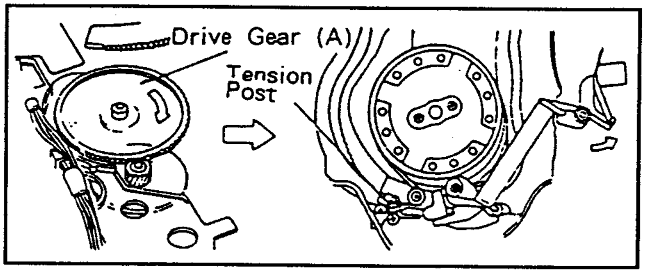

Drive Gear (A)
Tension Post

Figure M21

Note: In this case, make sure that the power is not applied.

2. Loosen the screw (A) a little bit and adjust the Tension Post adjustment plate so that the "Distance (A)" shown below becomes just meets the specification (2.4mm ~ 2.9mm).
3. Tighten the screw (A) to set it.

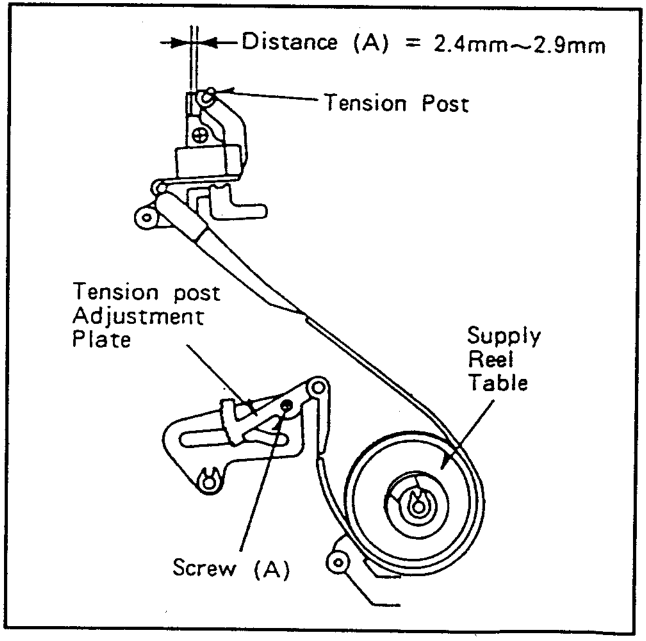

Distance (A) = 2.4mm~2.9mm
Tension Post
Tension post Adjustment Plate
Supply Reel Table
Screw (A)

Figure M22

2-5-14. BACK TENSION ADJUSTMENT

- Equipment Required:
  Back Tension Meter VFK0132
  VHS Cassette Tape (120min)
- Specification: ----- 19~23g

1. Play back the cassette tape from the beginning and wait until the tape movement becomes stable. (for approx. 1-~20 seconds) is stabilized.
2. Insert the Back Tension Meter into the path of a tape, and measure if the back tension is within specification as shown in Figure M23.

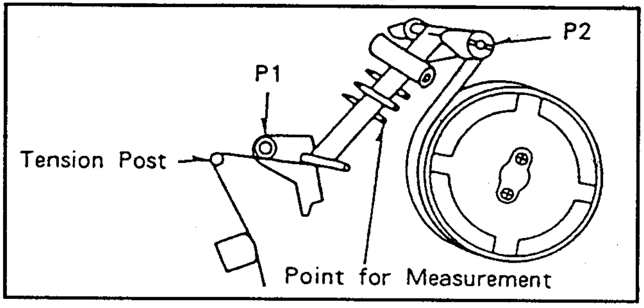


Figure M23

Note:
1. While measuring, make sure that the three probes of the meter are all in good contact with the tape.
2. As the tension meter is very sensitive, we recommend taking 3 separate readings.
3. If it is out of specification, change the spring notch as shown in Figure M24.

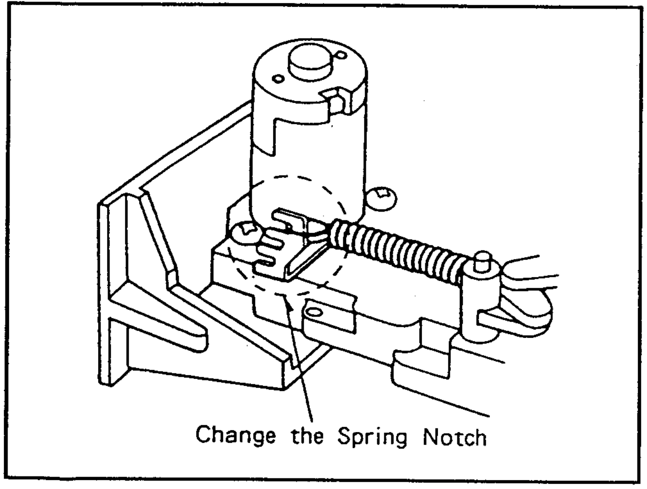


Figure M24

2-5-15. REEL TABLES HEIGHT ADJUSTMENT

- Equipment Required:
  Post Adjustment Plate ..... VFK0191 or VFK1012
  Reel Table Height Gauge VFK0190
- Specification ----- 0~0.15mm

Note: Cut-out on Post Adjustment Plate is reference of reel table height and their height is measured based on this reference.

1. Place the post adjustment plate on the reels, and put the Gauge on the plate. Set the gauge to zero "0" with the foot scraper of the gauge touching the cut-out portion of the plate.

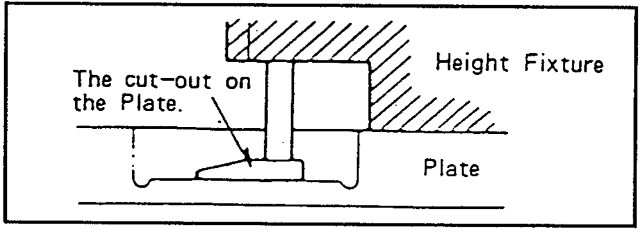


Figure M25

2. Then measure the height of reel table and confirm the difference performed in step 1 as shown below. Do the same for the other reel table.

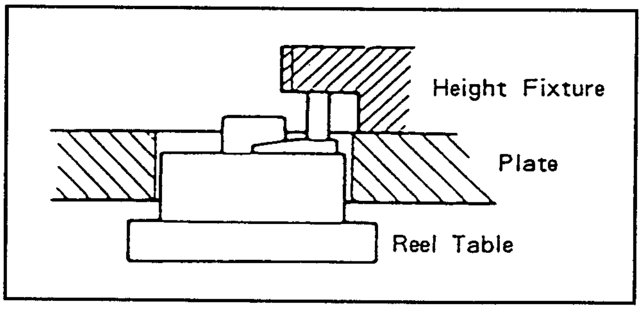


Figure M26

3. If a height difference in readings between the cut-out portion of plate and reel tables is not 0~-0.15mm (height or lower), adjust the height of the reel to obtain specified height.
4. For adjustment add or take out a washer.

2-5-16. ADJUSTMENT OF CAPSTAN FG HEAD GAP

- Specification ----- 0.17~0.18mm

1. Slightly loosen the 2 screws.
2. Put the paper which is used for cover page of this volume into the gap between F.G.Head and Capstan rotor (The thickness of the cover page is approx 0.17mm).
3. After adjustment, tighten 2 screws.

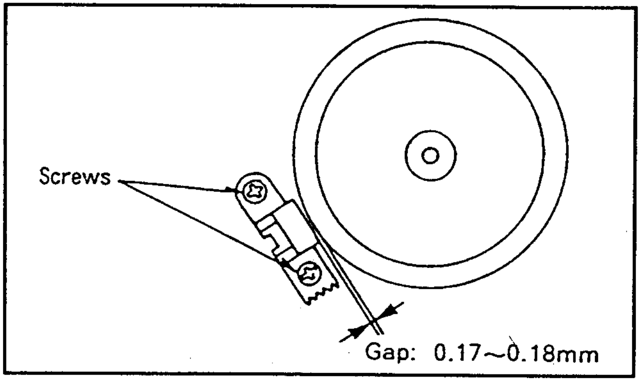


Figure M27

Note: Do not touch the surface of rotor and keep any magnetic material away.

2-5-17. TAKE UP IMPEDANCE ROLLER POSTION ADJUSTMENT

1. Loose screw (A) a little bit.
2. Push the Impedance roller to arrow direction and conform the project(A) touched to the V stopper base(B) then tighten the screw(A).

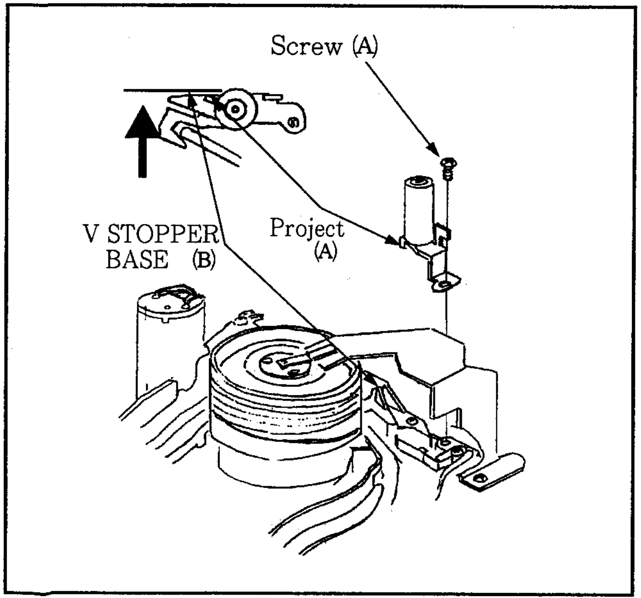


Figure M28

2-6. ASSEMBLY ADJUSTMENT PROCEDURES OF MECHANISM

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch.
Therefore the relationship between the mode select switch and the cam gear decides all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on.
If these parts are fixed in properly, the unit will be unloaded or compulsorily stopped.
And it will result being damage to any mechanical or electrical parts.

2-6-1. PROCEDURES FOR ASSEMBLING LOADING RING AND LOADING GEARS

1. Insert a ring guide sleeve onto the 3 shaft on the chassis.
2. Insert Loading Ring T (1) unit and a Loading Gear (B) with cut washer so that both triangle marks line up as shown below.

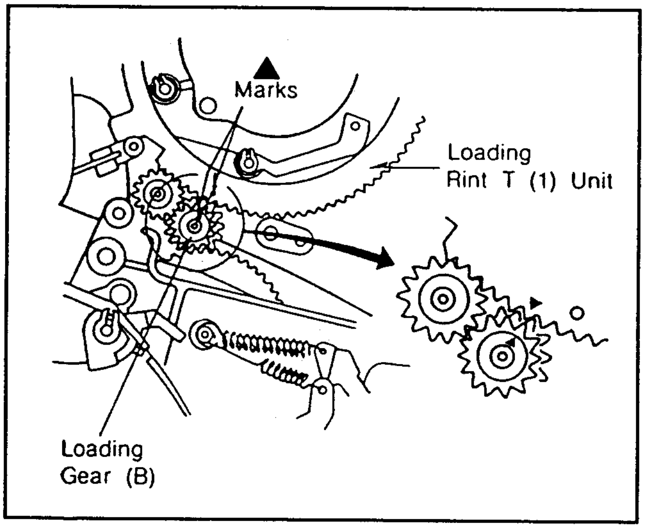


Figure M29

3. Insert loading guide roller onto 3 shaft.
4. Install a Loading Gear (A) with cut washer and next set a Loading Ring S (1) Unit so that the holes of Loading Ring S (1) Unit and T (1) Unit line on as shown below.
5. Install pressure spring inserted between loading ring S (1) unit and T (1) unit then set both loading ring units with washers and retaining rings.

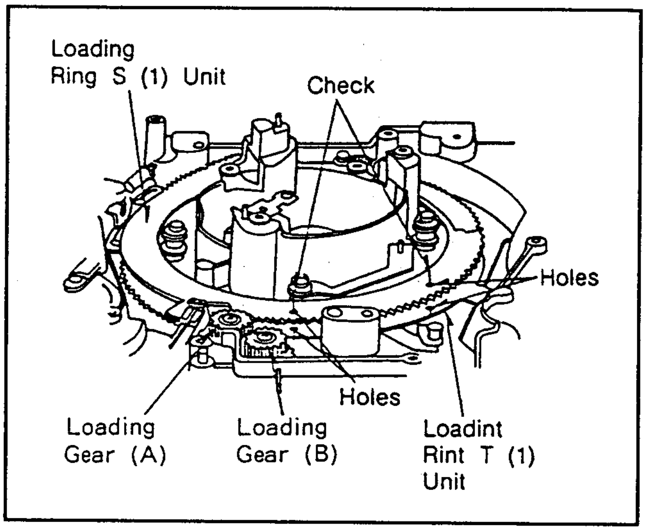


Figure M30

Note: Pay attention that the washers are remaining under the loading gears or any other parts.

2-6-2. PROCEDURES FOR ASSEMBLING TAKE-UP LOADING GUIDE AND TAKE-UP LOADING POST UNIT

1. Install Loading Guide T unit then tighten 3 screws.
   The small projection of a Loading Ling T unit must be inserted into gap of Loading Guide T unit.

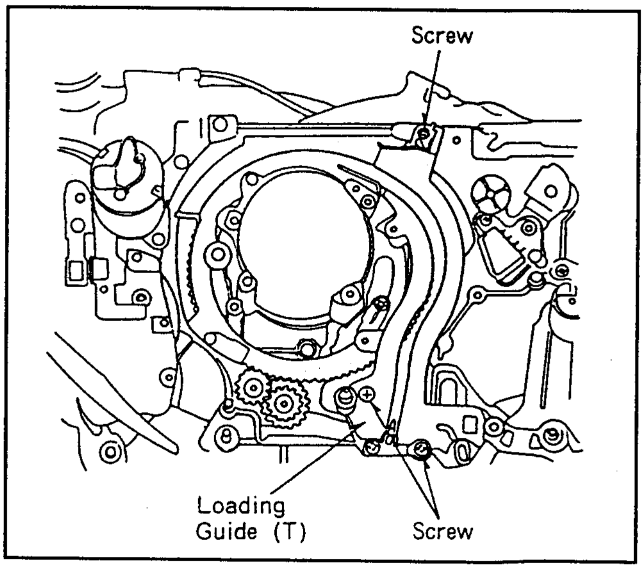


Figure M31

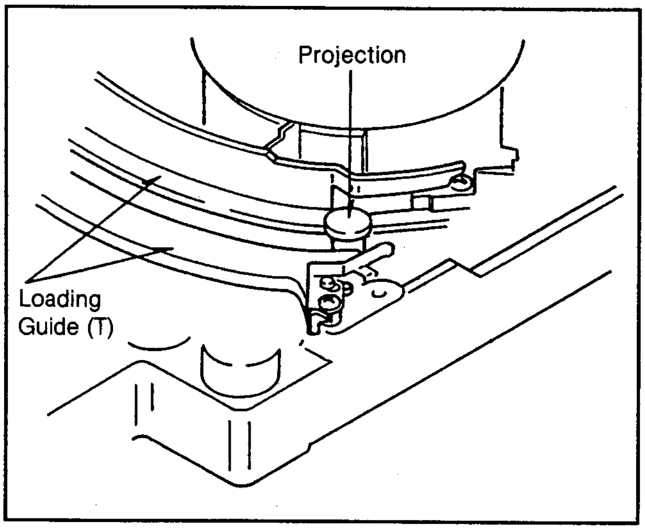

Projection
Loading Guide (T)

Figure M32

2. Fix a Take-up Side Loading Post unit holding the Small projection of the Loading Ling T unit and install at shaft Holder Unit.
3. Install the take up shaft holder angle and tighten a screw.

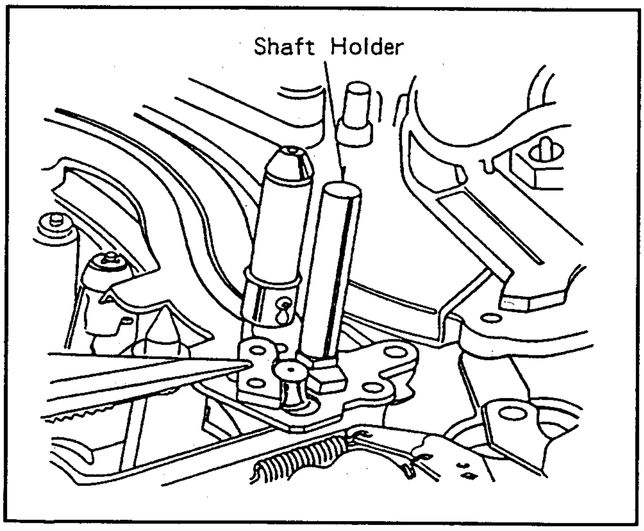

Shaft Holder

Figure M33

2-6-3. PROCEDURES FOR ASSEMBLING SUPPLY LOADING GUIDES AND SUPPLY LOADING POST UNIT

1. Install the Loading Guide S-1 and S-2. Then tighten 4 screws.

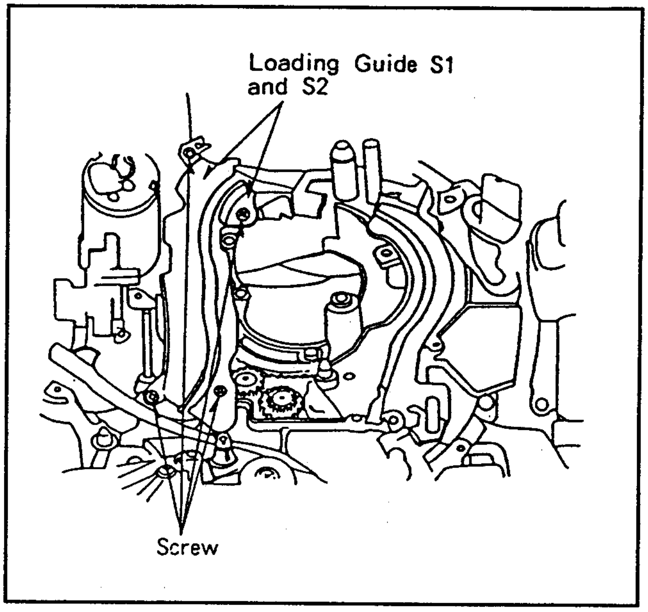

Loading Guide S1 and S2
Screw

Figure M34

2. Slide a Supply Loading Post Unit into the gap between the Loading Guide S1 and S2 hooking the connection Rod to the connection Tie Unit as shown below.

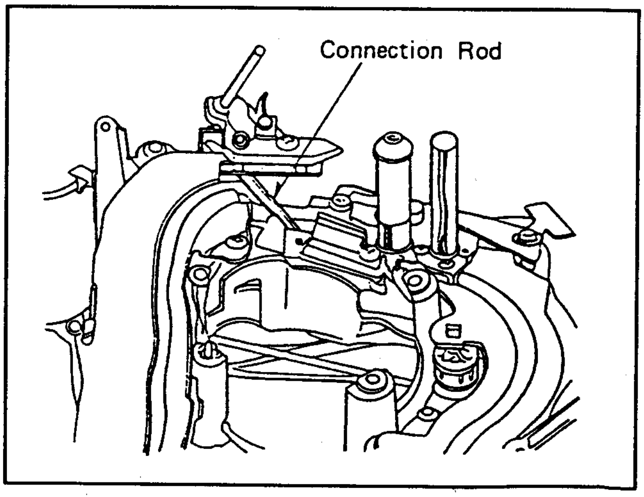

Connection Rod

Figure M35

3. Install a V stopper Base and Supply Post Stopper.

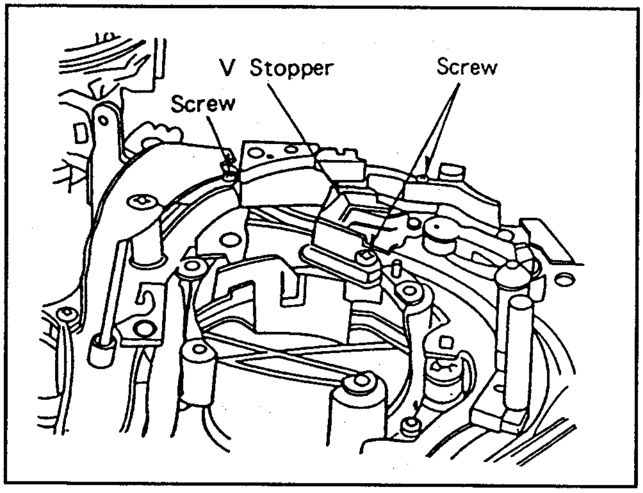

V Stopper
Screw
Screw

Figure M36

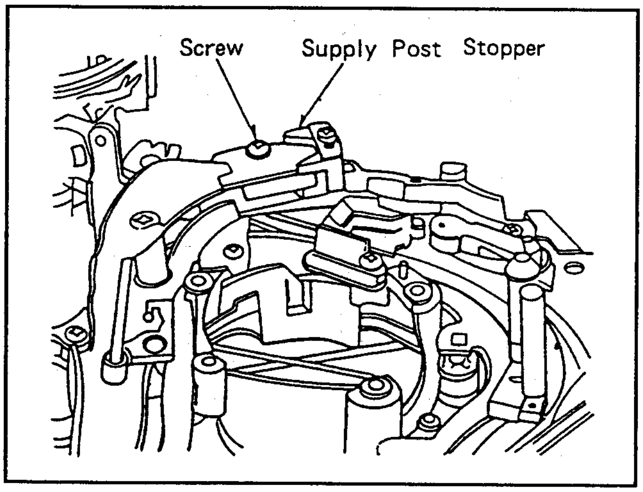

Screw
Supply Post Stopper

Figure M37

4. Set the Loading Post unit into Stop position as shown below.

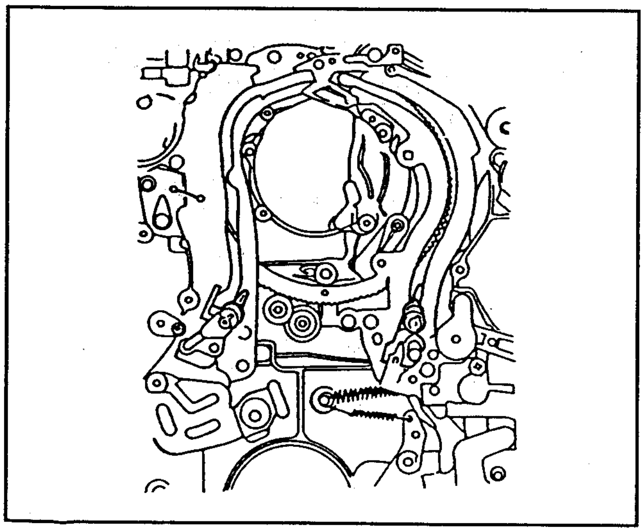


Figure M38

2-6-4. PROCEDURES FOR ASSEMBLING MAIN ROD

1. Place the Main Rod inserting 3 Thrust Washers and then insert 3 washers. After that, set them using 2 retaining rings as shown below.

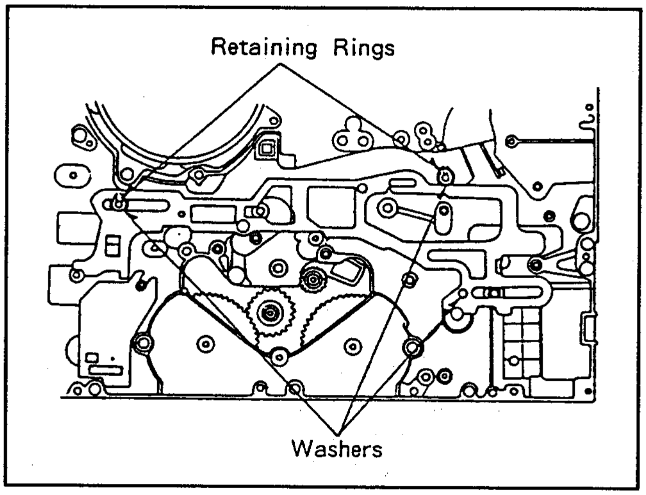

Retaining Rings
Washers

Figure M39

2. Install the Drive Arm kick Lever hooking the Drive Arm Kick Lever Spring and set it using a retainings.

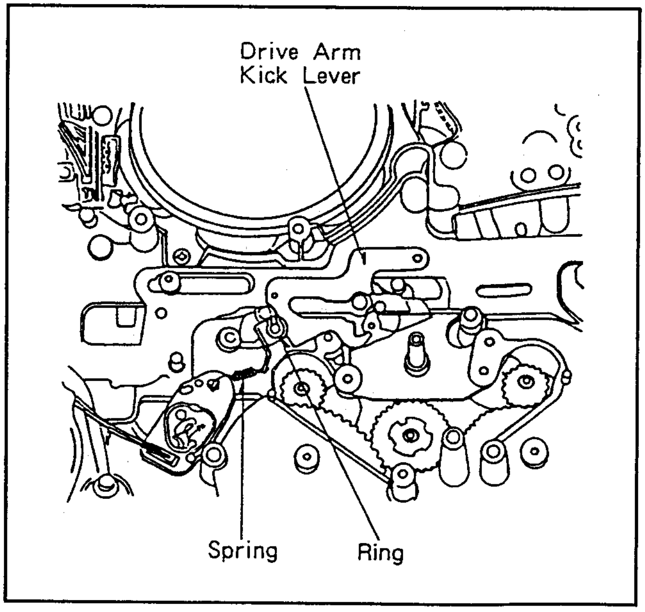

Drive Arm Kick Lever
Spring
Ring

Figure M40

2-6-5. PROCEDURES FOR ASSEMBLING CAM GEAR AND LOADING GEAR (C)

1. Make sure that the hole on the Main Rod Lines up exactly with hole on chassis as shown below. Also, make sure the hole on the Cam Gear Lines up with the holes on the chassis.

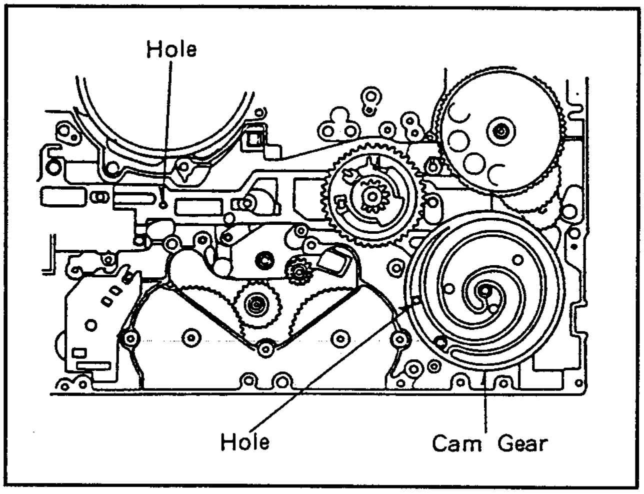

Hole
Hole
Cam Gear

Figure M41

2. Install the Loading Gear (C) keeping the relationship as shown below.

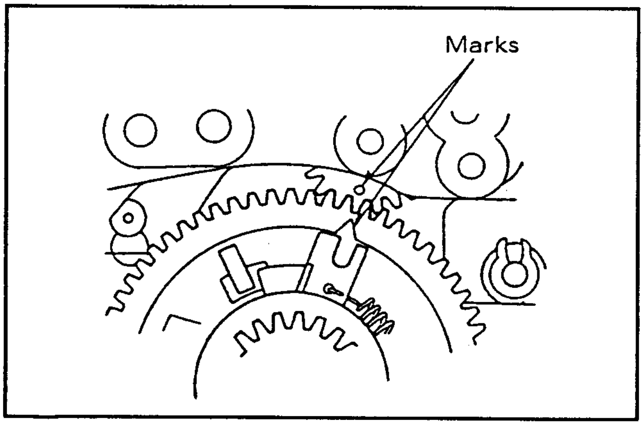


Figure M42

3. Install a Sector Gear as shown below.

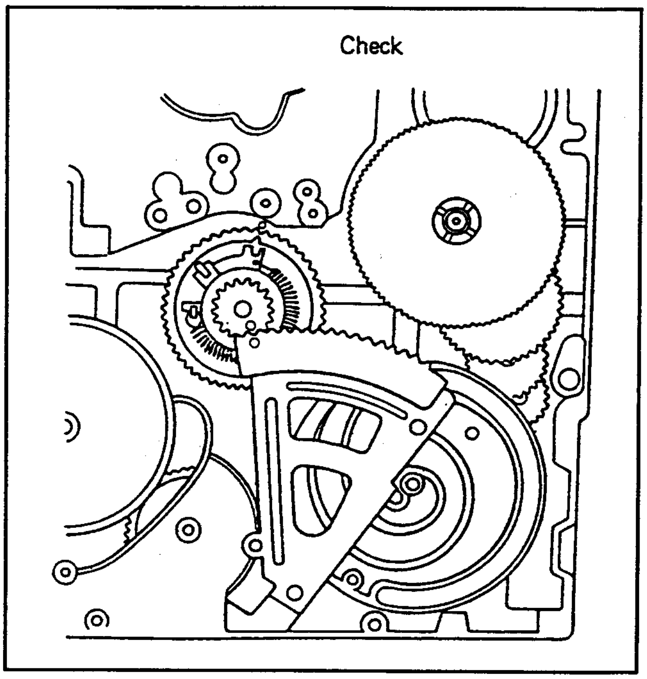


Figure M43

4. Set the SG Limiter.

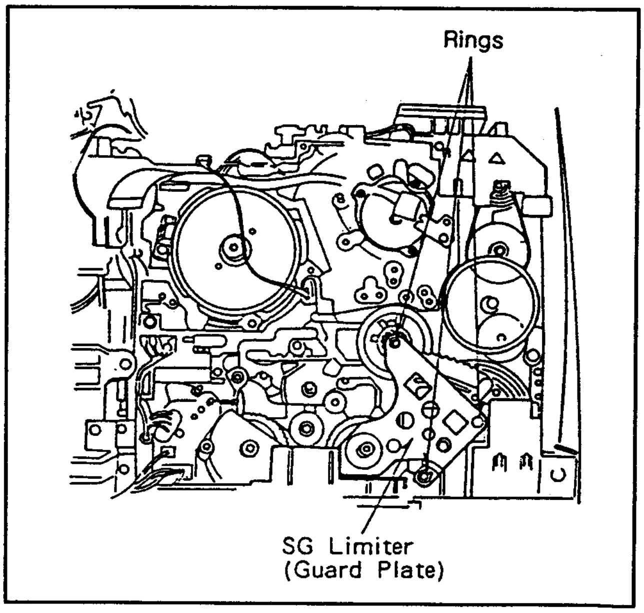

Rings
SG Limiter
(Guard Plate)

Figure M44

5. Install the belt and the belt cover.

2-6-6. ASSEMBLY PROCEDURES OF MODE SELECT SWITCH

1. Perform this procedure after confirming the complete setting of mechanical parts.
   First of all, confirm that the hole on a Main Rod is meeting with the hole on the chassis.
2. Position the moving contact of the mode select switch to the position as shown below.

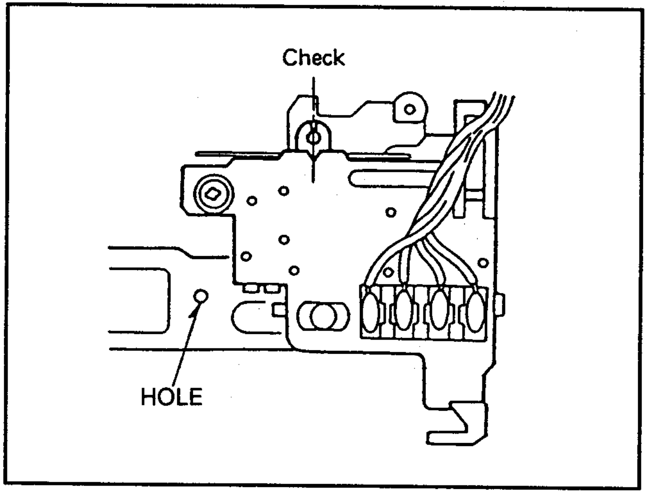


Figure M45

3. Install the Mode Select Switch Keeping these relationship written in item (1) and (2) by adjusting 2 screw.

2-7. ELECTRICAL ADJUSTMENT PROCEDURES

2-7-1.ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section.

1) TEST EQUIPMENT

1. Oscilloscope
   Dual Trace, 50MHz, 2mV/DIV
   10:1 Probe
   1:1 Probe
2. Digital Volt Meter of VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 foot-candles (1400lux) on the chart surface 3200 degrees K.

2) TOOLS

- * Logarithmic Gray Scale Chart
  (Part No.: YWV2310RB99)
- * Colour Chip Chart
  (Part No.: YWV2100RB98)
- * Hunting Chart
  (Part No.: VFK0546)
- * J Chart & Ball Chart
  (Part No.: VFK0580)
- * Colour Bar Chart
  (Part No.: VFK0677)

10. Plastic Tip Driver
11. E.V.R. FIXTURE (Part No.: VFK0644)
    * ROM 11 (Part No.: VFK0701ROM11)

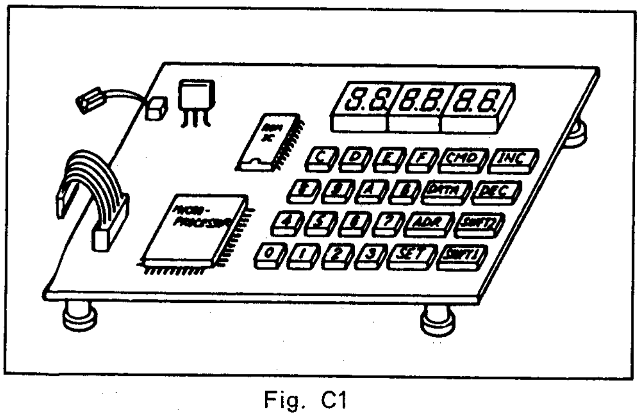


Fig. C1

12. Colour Temperature Conversion Filter
    * C12 Filter (Part No. VFK0374 or VFK0713)
    * C2 Filter (Part No. VFK0375 or VFK0716)
    * Movie Light Box VRD91MLB
    (including VFK0777 Gray Scale Chart)
13 Extension Cable
    * CONNECTION Cable for Measurement (24P)
    (Part No. VFK0734W)
    * EVR CONNECTION Cable (5P)
    (Part No. VFK0766A)
14. Camera Extension Cables

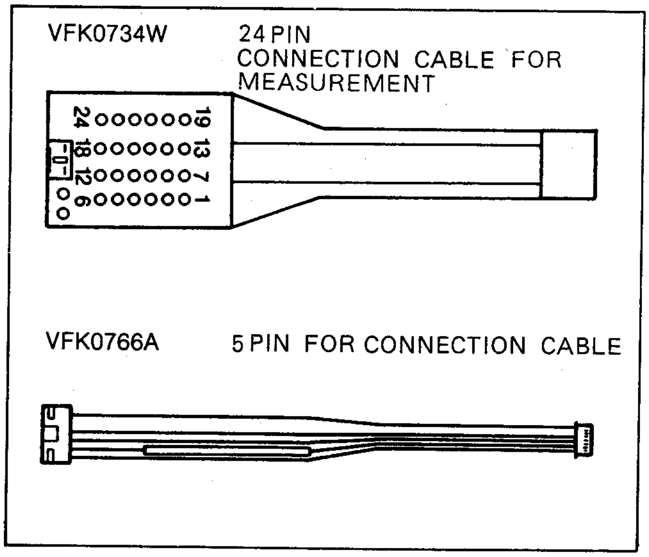


Fig. C2

(Standard Setting for Camera Adjustment)

The camera switches must be set in the following position for camera adjustment unless other wise specified each adjustment procedure.

1) White Balance Switch...White set
   (Refer to How to White Set)
   AF...Auto
   High speed shutter...OFF
   Fade...OFF
2) Iris...Center(ALC condition)
3) Use 3200 degrees kelvin light source for lighting.
4) To trigger the oscilloscope, use Video output.
5) Service work for camera unit must be performed in a dust free location to maintain the lens cleanliness.

(How to set White Balance)

1) Aim the camera at white chart.
2) Push [SHIFT 1 + 8] simultaneously.

(Description of Command)

Selecting the communication for the type of data exchange performed between EVR Fixture and camcorder.

Command	Communication	Contents
02	EVR Fixture → EEPROM	Writing the data to address of EEPROM. .(Lower Digit)
12	EVR Fixture → EEPROM	Writing the data to address of EEPROM. (Upper Digit)
04	EEPROM → EVR Fixture	Reading out the data of EEPROM. (Lower Digit)
14	EEPROM → EVR Fixture	Reading out the data of EEPROM. (Upper Digit)
08	EVR Fixture → Micro Computer (RAM)	Data transmission of EVR Fixture to Micro computer (RAM).
18	EVR Fixture → Micro computer (RAM)	Data tranmission of EVR Fixture to Micro computer (RAM).
09	Micro computer (RAM) → EVR Fixture	Reading out the data of Micro computer (RAM).
19	Micro computer (RAM) → EVR Fixture	Reading out the data of Micro computer (RAM).

Fig. C3

(Error Indication)

If an error is occurs while EVR is operating, EVR will display one of the error massages listed in Fig.C4 for 2 seconds and then return to the previous indication.

Error NO.	Contents of Error	Simple checking method
1	Set the command number	
2	Set the wrong Address number	
3	VD signal from camera is not coming.	TP lead wire may be cut
4~6	Detect the error during communication	TP lead wire may be cut
7	Writing error in the EEPROM of camera.	Command or address cure wrong
8	Communication error in the EEPROM of camera	Same as above

Fig. C4

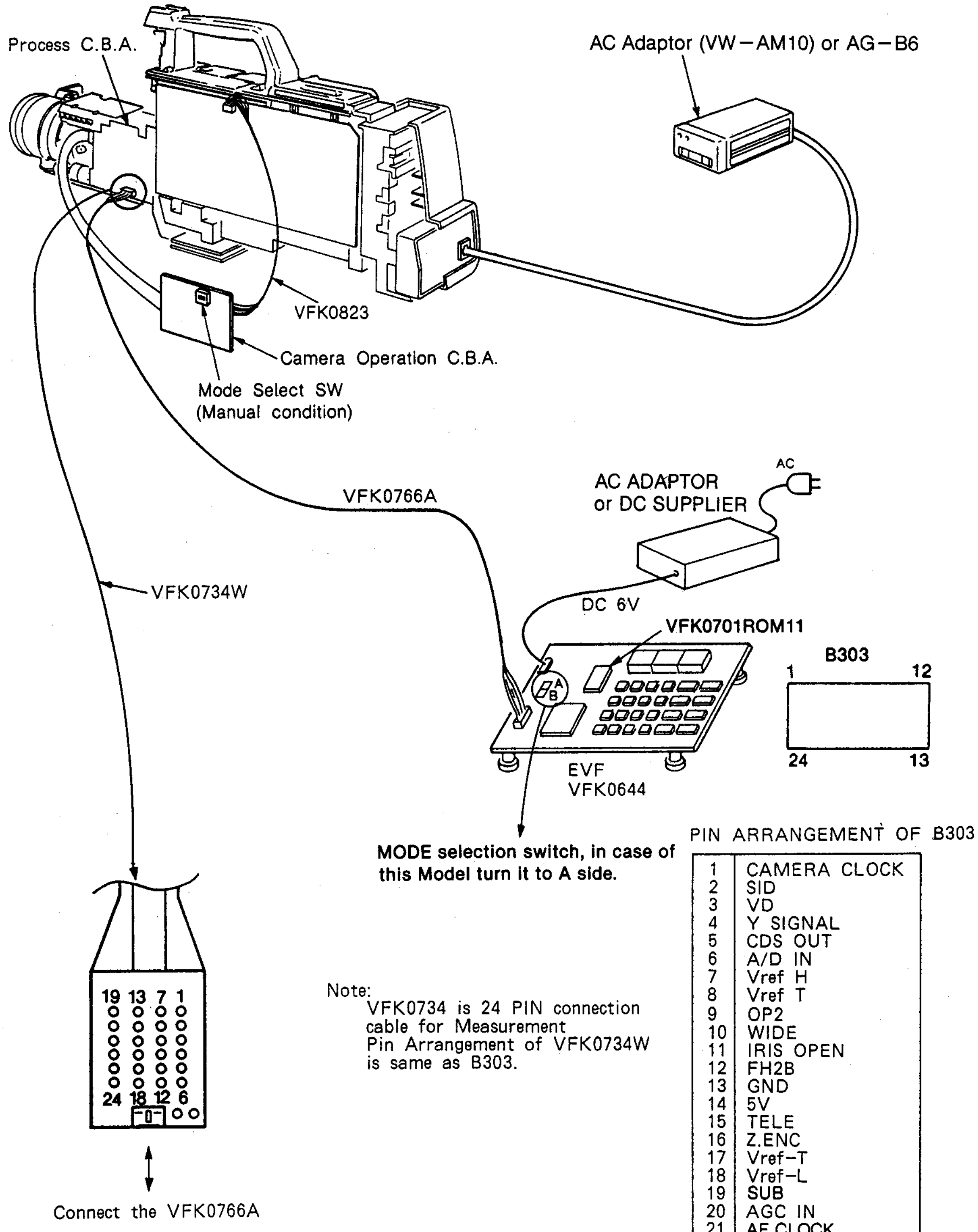
(Macro Operation)
The following operation is provided to transfer the data by one touch.

NO.	Buttom to be pushed	Operation
1	SHIFT 1+0	Fully opens the IRIS.
2	SHIFT 1+1	Fully close the IRIS.
3	SHIFT 1+2	Minimizes AGC Gain.
4	SHIFT 1+3	Maximizes AGC Gain.
5	SHIFT 1+4	Turns Fade on.
6	SHIFT 1+5	Turns Fade off.
7	SHIFT 1+6	NOT USED
8	SHIFT 1+7	(Mode select sw on the Camera Operation C.B.A., should be "MANUAL" position.) Switcing the Auto/manual Focus. * Press the SHIFT 1+7 to select the Auto or Manual Focus. (The focus mode selected is displayed on Address LED only while the keys are depresses) LED INDICATION — MODE 0 — Manual Focus mode. 1 — Auto Focus mode.
9	SHIFT 1+8	White set (Mode select sw on the Camera Operation C.B.A., should be "MANUAL" position.)
10	SHIFT 1+9	Making Iris manual condition.
11	SHIFT 1+A	Iris is return to Auto Mode.
12	SHIFT 1+B	AGC Gain is return to Auto Mode.
13	SHIFT 2+0	Writes the Average data Fixed data to the EEPROM.
14	SHIFT 2+1	Automatically Calculates the Colour Reproduction and White Balance.
16	SHIFT 2+5	Zooms to "WIDE" position.
17	SHIFT 2+6	Stop the Zoom.
18	SHIFT 2+7	Zooms to "TELE" position.
19	SHIFT 2+8	Stop the Zoom.
20	SHIFT 2+9	Automatic Calculating for Manual Iris setting.

Fig. C5

PREPARATION

1) Remove both side cases referring to disassembly method.
2) Connect the E.V.R. FIXTURE and measuring equipment as shown in Fig.C6.


Process C.B.A.
AC Adaptor (VW−AM10) or AG−B6
VFK0823
Camera Operation C.B.A.
Mode Select SW
(Manual condition)
AC
AC ADAPTOR
or DC SUPPLIER
VFK0766A
VFK0734W
DC 6V
VFK0701ROM11
B303
1
12
24
13
A
B
EVF
VFK0644
19 13 7 1
24 18 12 6

MODE selection switch, in case of this Model turn it to A side.

Connect the VFK0766A

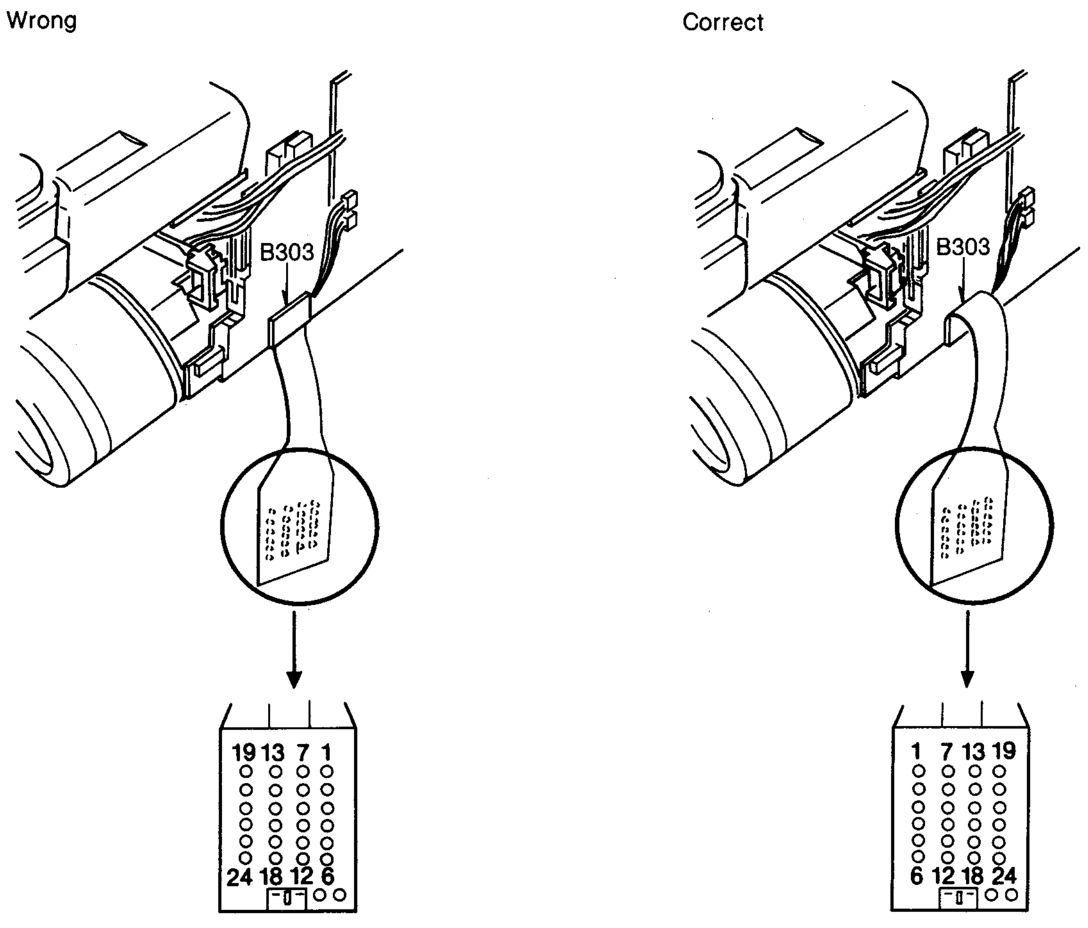
Note:
VFK0734 is 24 PIN connection cable for Measurement
Pin Arrangement of VFK0734W is same as B303.

PIN ARRANGEMENT OF B303

1	CAMERA CLOCK
2	SID
3	VD
4	Y SIGNAL
5	CDS OUT
6	A/D IN
7	Vref H
8	Vref T
9	OP2
10	WIDE
11	IRIS OPEN
12	FH2B
13	GND
14	5V
15	TELE
16	Z.ENC
17	Vref−T
18	Vref−L
19	SUB
20	AGC IN
21	AF CLOCK
22	AF DATA
23	CAMERA TEST
24	GND

Fig. C6-1

How to connect the EVR Fixture



(Front Side of VFK0734W)

(Rear Side of VFK0734W)

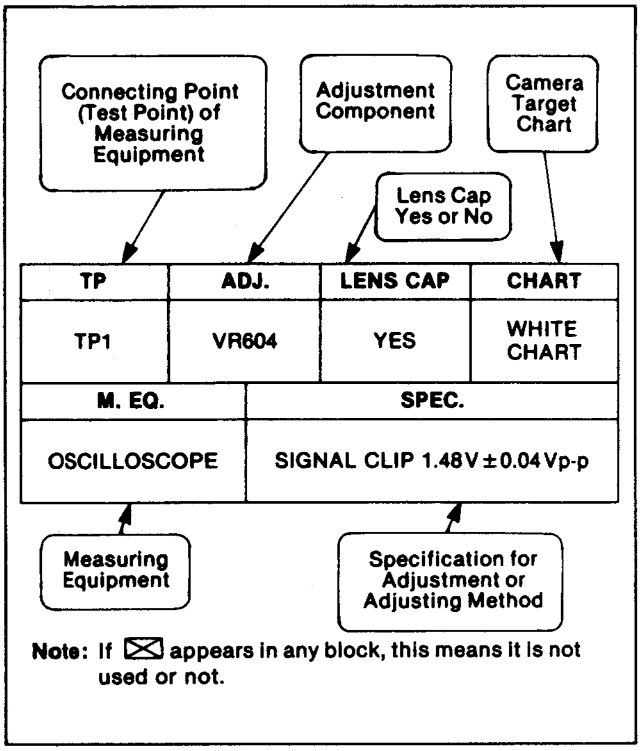
Caution:

If connect the VFK0734W between EVR and Movie camera as above figure, Iris making fully open condition and EVR can't use for Adjutment of camera.

Fig. C6-2

1) Set the mode selector on the E.V.R. Fixture to "**B**" side. (Refer to Fig.C27)
2) Turn on the power SW of Movie camera.
3) Turn on the power SW of E.V.R. fixture. The LED Display on E.V.R. Fixture will indicate 08,80,00. If it does not indicated, push the Reset button and/or check the cable connections between EVR and CAMERA.
4) Mode Select SW on the camera Operation C.B.A., should be "manual" condition.
   If "AUTO" condition, focus is always "AUTO".

HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF CONVENTIONAL VR)


Connecting Point (Test Point) of Measuring Equipment
Adjustment Component
Camera Target Chart
Lens Cap Yes or No
Measuring Equipment
Specification for Adjustment or Adjusting Method

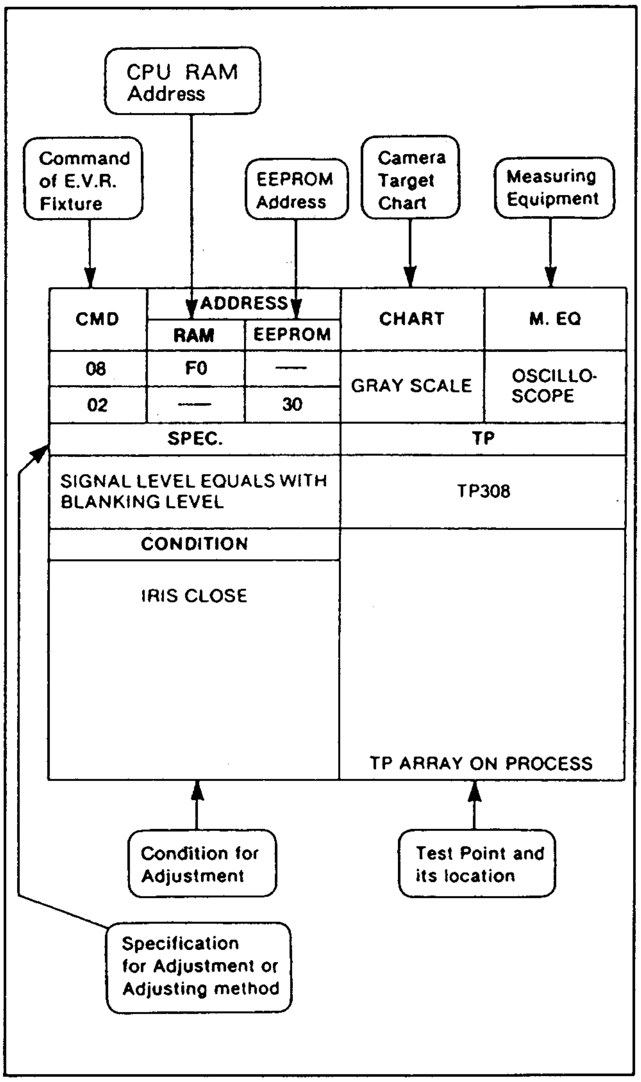
TP	ADJ.	LENS CAP	CHART
TP1	VR604	YES	WHITE CHART

M. EQ.	SPEC.
OSCILLOSCOPE	SIGNAL CLIP 1.48V±0.04Vp-p

Note: If ☒ appears in any block, this means it is not used or not.

Fig. C7

HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF E.V.R.)


CPU RAM Address
Command of E.V.R. Fixture
EEPROM Address
Camera Target Chart
Measuring Equipment
Condition for Adjustment
Test Point and its location
Specification for Adjustment or Adjusting method

CMD	ADDRESS		CHART	M. EQ
	RAM	EEPROM		
08	F0	—	GRAY SCALE	OSCILLO-SCOPE
02	—	30		

SPEC.	TP
SIGNAL LEVEL EQUALS WITH BLANKING LEVEL	TP308
CONDITION	
IRIS CLOSE	TP ARRAY ON PROCESS

Fig. C8

1. DATA WRITING

When EEPROM is replaced, all item needs re–adjustment.

But if VFK0701ROM11 (New ROM) is installed to the EVR Fixture (VFK0644), when the pushing [SHIFT 2] and [0] keys simultaneously, Average and fixed Data are written in to EEPROM Automatically.

1.DATA WRITING

When EEPROM is replaced, all item needs readjustment.
Before starting the adjustment, Average and fixed data are written into the EEPROM as the following steps.

1.VFK0701ROM11(ROM IC) is installed to the EVR Fixture (VFK0644)
2.Connect the EVR Fixer.
3.Press the [SHIFT 2]+[0] Keys.
4.Press the [CMD],[02],[ADR] and [3D] keys.
  Press the [DATA],[1E] and [SET] keys.
5.Press the [CMD],[12],[ADR] and [3D] keys.
  Press the [DATA],[1E] and [SET] keys.
6.Press the [CMD],[12],[ADR] and [74] keys.
  Press the [DATA],[11] and [SET] keys.

		UPPER							
LOWER		0	1	2	3	4	5	6	7
0	H DIGIT	B-Y Gain 6000 2B	B-Y MAT 6000 80	B-Y WB 6000 5C	B-Y limit 6000 47	B-hili 6000 49	BACKUP 1 72	vap-cl D0	cnt lapt 25
	L DEGIT	R-Y Gain 6000 38	R-Y MAT 6000 75	R-Y WB 6000 39	R-Y limit 6000 23	R-hili 6000 43	BACKUP 1 9E	vap-core 25	glap 83
1	H DIGIT	B-Y Gain 5100 2B	B-Y MAT 5100 80	B-Y WB 5100 69	B-Y limit 5100 49	B-hili 5100 72	BACKUP 2 80	Hap-cor 82	cnt ck B0
	L DEGIT	R-Y Gain 5100 38	R-Y MAT 5100 75	R-Y WB 5100 41	R-Y limit 5100 26	R-hili 5100 56	BACKUP 2 54	hi-l, ap 10	cnt ct E0
2	H DIGIT	B-Y Gain 4500 2B	B-Y MAT 4500 80	B-Y WB 4500 7D	B-Y limit 4500 72	B-hili 4500 92	BACKUP 3 8B	cnt 2-up 06	cnt lapk 25
	L DEGIT	R-Y Gain 4500 38	R-Y MAT 4500 75	R-Y WB 4500 3B	R-Y limit 4500 33	R-hili 4500 55	BACKUP 3 56	cnt 2-dn 80	g lap F8
3	H DIGIT	B-Y Gain 3600 2D	B-Y MAT 3600 81	B-Y WB 3600 91	B-Y limit 3600 79	B-hili 3600 A0	BACKUP 4 F0	H+ gain 20	NOT USED 00
	L DEGIT	R-Y Gain 3600 38	R-Y MAT 3600 74	R-Y WB 3600 5D	R-Y limit 3600 55	R-hili 3600 5F	BACKUP 4 FF	Vap-gain 0D	NOT USED 00
4	H DIGIT	B-Y Gain 3300 2D	B-Y MAT 3300 81	B-Y WB 3300 92	C-FLAG TH 67	CSPDm 08	agclim 2 A0	c-g-ap 20	NOT USED 11
	L DEGIT	R-Y Gain 3300 38	R-Y MAT 3300 74	R-Y WB 3300 61	CHSPD 04	CSPDs 19	EIS ON／OFF 83	c-g-sw 55	NOT USED 00
5	H DIGIT	B-Y Gain 3100 3F	B-Y MAT 3100 81	B-Y WB 3100 93	B-limit 3100 7F	B-hili 3100 C0	ped-h 0A	H-st／p 30	NOT USED 01
	L DEGIT	R-Y Gain 3100 35	R-Y MAT 3100 70	R-Y WB 3100 65	R-limit 3100 5F	R-hili 3100 AD	ped-1 H-ed／p 0A	H-ed 40	NOT USED 00
6	H DIGIT	B-Y Gain 2800 38	B-Y MAT 2800 81	B-Y WB 2800 9A	B-limit 2800 7F	B-hili 2800 C0	ped-st 50	V-st／b 30	NOT USED 05
	L DEGIT	R-Y Gain 2800 36	R-Y MAT 2800 70	R-Y WB 2800 71	R-limit 2800 AD	R-hili 2800 AD	ped-end 90	V-ed／p D0	NOT USED 00
7	H DIGIT	STH FF	00	Bwb Llimit 5C	B-limit SKY 00	B-hili SKY 47	Ped-lvl 00	H-st／b 4C	NOT USED 70
	L DEGIT	00	00	Rwb Llimit 39	R-limit SKY 20	R-hili SKY 43	flag 3 FD	sw B5	NOT USED 00
8	H DIGIT	Hap gain 20	Hap-core 82	Bwb Hlimit 69	B-limit TREE 72	B-hili TREE A0	flag 7 FF	Y-base AC	NOT USED 10
	L DEGIT	Uap gain 10	00	Rwb Hlimit 41	R-limit TREE 20	R-hili TREE 33	flag 8 03	Vap-core 05	NOT USED 00
9	H DIGIT	Houwa-U D0	HAP-NO 3C	B-Y WB 4900 69	BWBZ B 84	BWBZ C 00	Tree BK 03	cntlap 28	NOT USED 00
	L DEGIT	Houwa-L B0	PEAKLPF 22	R-Y WB 4900 41	RWBZ B 84	RWBZ C 00	P-WAITE A0	g-lap D3	NOT USED 00
A	H DIGIT	palflag F4	cls 4 31	DSP Ver 01	U puls 00	Baxish Th 72	st-alcp 05	D-Aagc 41	NOT USED 02
	L DEGIT	haloth 17	cls 8 71	MODEL-NBR 03	d puls 00	Baxish Th 55	st-alcn 05	cntc E0	NOT USED 00
B	H DIGIT	B in 05	VSTART 13	TH 1 55	TH 3 6F	PALBR 00	open g 1 40	Ychk h A0	NOT USED B4
	L DEGIT	R in 05	ad set 93	TH 2 02	TH 4 10	LOOPTH 02	open g 2 6F	Ychk 1 28	NOT USED 00
C	H DIGIT	Outb 1 9F	ina 1 F3	OPS 4 31	KOTEI A 20	OPEN 1 00	OPEN 3 0A	Yclpv 1 6D	NOT USED 33
	L DEGIT	Outb 2 7B	ina 2 E6	ST 83	KOTEI B 20	OPEN 2 00	OPEN G 3 82	darklv 1 00	NOT USED 00
D	H DIGIT	Outb 3 5C	ina 3 CD	Seki D0	KOTEI C 1E	CLOSE 1 00	CLOSE 3 C1	BACK UP 01	NOT USED 02
	L DEGIT	Outb 4 4F	ina 4 B3	AGC lim B0	KOTEI D 1E	CLOSE 2 00	CLOSE G 3 95	BACK UP FF	NOT USED 00
E	H DIGIT	Outb 0 0B	close 00	SW-set 83	Keisha 03	ag cnt 1 3F	CORE 03	loop gn 19	NOT USED 32
	L DEGIT	T-gain 24	open 00	MIX 03	AG-CENTER 9F	f cnd 48	CLOSE G2 A8	loop gt 02	NOT USED 09
F	H DIGIT	A／D IN 9D	AF-ap 97	OR bias 6C	R-YKB 40	LOW CLIP 8D	OPS 8 71	clpmax E0	NOT USED 2D
	L DEGIT	AF-Vn 84	AF-AMP AB	PWM-B D2	Y-GAIN 21	B-YKB 3B	CLOSE G3 BB	PAL flkg 41	NOT USED 00

Fig.C9 Address map of all Average Data

2. VTR CARRIER BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	R:B8 B:BB	——		VECTOR-SCOPE
12, 02	——	R-Y:3F (H) B-Y:4F (L)		
SPEC.			TP	
CENTRE OF ECTORSCOPE			VIDEO OUT	

Purpose:
Set chroma signal black and white level.

Symptom of Misadjustment:
With a large shift, colour is added to Black and white areas in the picture.

Note:
Refer to preparation for connection of EVR.

<Preparation>
1. Connect the vectorscope to Video out.
2. Aim the camera at white chart.
3. Push [SHIFT 1 + 8] keys simultaneously for white set.
4. Place the unit to "IRIS CLOSE" by pushing [SHIFT 1 + 1] keys simultaneously.

<Adjustment for R–Y>
Push following keys in order.
5. * [CMD], [1], [8].
   * [ADR],[B],[8].
6. Push [INC] or [DEC] keys until the vectors are in or close as possible to the centre, See Fig.C10.

<Data writing for R–Y>
Push following keys in order.
7. * [CMD], [1], [2].
   * [ADR], [3], [F]. (Does not change the data).
   * [SET].

<Adjustment for B–Y>
Push following keys in order.
8 * [CMD], [1], [8].
  * [ADR],[B],[B].
9. * Push [INC] or [DEC] keys until the vectors are in or as close as possible to the centre, See Fig.C10.

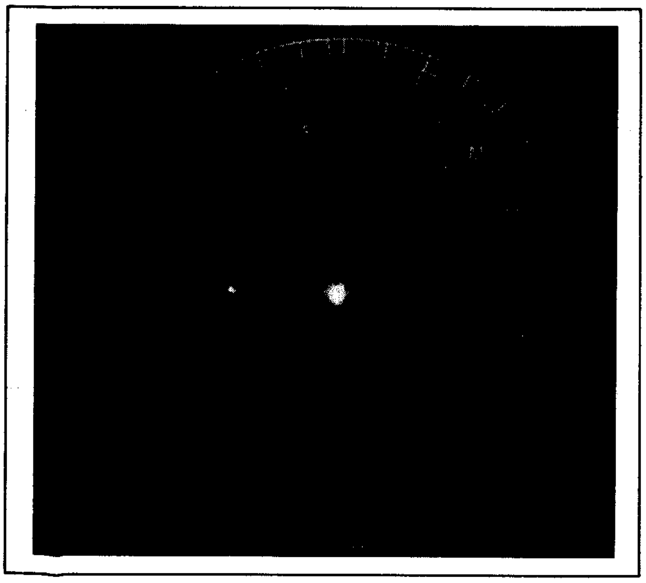
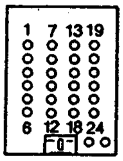


Fig. C10

<Data writing for B–Y>
Push following keys in order.
10. * [CMD], [0], [2].
    * [ADR], [4], [F]. (Does not change the data).
    * [SET].
    * [SHIFT 1 + A] (Iris is return to Auto Mode).

3. HALL AMP ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B5	——		D.V.M
	VR701	——		
02	——	IF		
SPEC.			TP	
VOLTAGE B303-9 (VFK0734W-PIN 9)= VOLTAGE B303-18 (VFK0734W-PIN 18) VOLTAGE B303-9 (VFK0734W-PIN 9)= VOLTAGE B303-7 (VFK0734W-PIN 7)			B303-9 (PIN Number 9 of VFK0734W) VFK0734W-REAR  1 7 13 19 6 12 18 24	

Purpose:
Hall Amp Adjustment

Symptom of Misadjustment:
Hunting occurs or focus stops.

<Preparation>
1. Connect the jumper wire between B303–11 (VFK0734W–PIN11) and GND for Making Iris close. (Do not use EVR for IRIS close)

<Adjustment 1>
Push the following keys in order.
2. * [CMD], [1], [8].
   * [ADR], [B], [5].
3. * Push [INC] or [DEC] keys until the voltage level at B303–9(VFK0734W–9) is Vref 1 +– 10mV. (Vref 1 = B303–18 (VFK0734W–18)).

<Data Writing for Adjustment 1>
Push the following keys in order.
4. * [CMD], [0], [2].
   * [ADR], [1], [F].
   * [SET].
   * Remove the jumper wire.

<Adjustment 2>
5. Connect the jumper wire between B303–11 (VFK0734W–PIN11) and B303–14 (VFK0734W –PIN14) for fully open the Iris.
6. Adjust the VR701 so that Voltage at B303–9 (VFK0734W–9) is Vref 3 +– 30mV. (Vref 3 = B303–7 (VFK0734W–7).
7. Remove the jumper wire.

4. PLL FREQUENCY ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
CL203	C223		

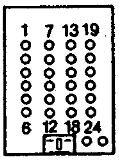
M. EQ.	SPEC.
FREQUENCY COUNTER	12.713285MHz±15Hz

Purpose:
CCD Drive pulse adjustment

Symptom of Misadjustment:
Picture sync misoperation.

5. P WM ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B7	—		D.V.M
02	—	2F (L)		

SPEC.	TP
	B303-9 (VFK0734W-PIN 9) VFK0734W-REAR 

<Pre paration>
1. Set the Iris to "open". (Push [SHIFT 1 + 0]).
2. Connect the D.V.M. to B303-9 (VFK0734W-PIN9).

<Pre-Adjustment>

Push the following keys in order.

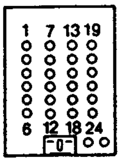
3. * [CMD], [1], [8].
   * [ADR], [B], [7].
4. Push [INC] or [DEC] keys until the voltage level at B303-9(VFK0734W-9) is Vref 1 +- 50mV. (Vref 1 ="B303-7(VFK0734W-7)"-500mV).
5. * [SHIFT 1 + 1] (fully close the Iris).
6. * [SHIFT 1 + 0] (fully open the Iris).

<Fine-Adjustment>
Push the following keys in order.
7. * [CMD], [1], [8].
   * [ADR], [B], [7].
8. Push [INC] or [DEC] keys until the voltage level at B303-9(VFK0734W-9) is Vref 2 +- 20mV. (Vref 2 ="B303-7(VFK0734W-7)"-140mV).

<Data Writing>
Push the following keys in order.
9. * [CMD], [0], [2].
   * [ADR], [2], [F]. (Does not change the data).
   * [SET].
   * [SHIFT 1 + A] (Iris is return to Auto Mode).

6. ZOOM ENCODER AND FOCUS ENCODER ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	T: B4 W: B3	—	object: 1.5m (Hunting chart)	DIGITAL VOLTMETER
12	—	T: 1F (H)		
02	—	W: 0F (L)		

SPEC.	TP
To be calculated	B303-8 (VF0734W-8) B303-17 (VFK0734W-17) VFK0734W-REAR 
CONDITION	
• Focus Manual (SHIFT 1+7)	

Note:
1) Unless you replaced Zoom Encoder, 3rd lens (1) unit or 4th moving frame (1) unit, do not perform this adjustment. (Because this adjustment is critical).
2) Regarding the connection of EVR, refer to preparation. (Fig.C6)

<Initial Measurement and Preparation>

1. Check the voltage at B303-8(VFK0734W-PIN8) and B303-17(VFK0734W-PIN17) before changing the defective lens unit.
   For example:
   B303-8(VFK0734W-PIN8) : 3.652V
   B303-17(VFK0734W-PIN17) : 1.456V
2. Make note the potential difference between B303-8(VFK0734W-PIN8) and B303-17(VFK0734W-PIN17).
   For example:
   3.652-1.456 = 2.196V
3. Turn off the power SW.
4. Replace lens unit.
5. Loosen 2 screws of Focus encoder C.B.A. and move C.B.A. to center position as shown in Fig.C11-1.

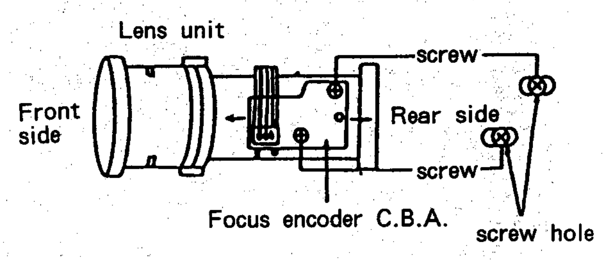


Fig. C11-1

6. Turn on the power SW.

7. Set the Focus system to Manual Focus.
(Pushing [SHIFT 1 + 7] keys simultaneously switches the Focus system between Manual and Auto Focus, "0" displayed at address LED while [SHIFT 1 + 7] keys depressed indicates Manual Focus, "1" indicates Auto Focus.

8. Zoom the lens to full tele position.
Push [SHIFT 2 + 7] keys simultaneously.

9. Aim the unit at Hunting chart from a distance 1.5 meter.
10. Set the focus to full (−) position.
* Turn the focus ring counterclockwise until the picture focus does not change.

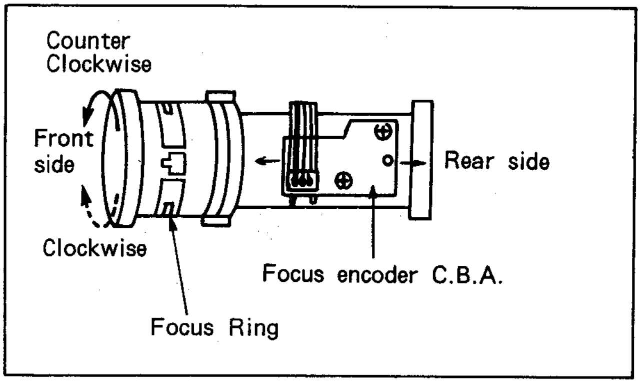


Fig. C11−2

<Adjustment for Tele Side>
Push the following keys in order.

11. * [CMD], [1], [8].
* [ADR], [B], [4].

12. * Push [INC] or [DEC] keys until the lens focus is in correct position.

[Note 1]
The focus does not change while focus voltage is being adjusted on the EVR.
To see the focus adjustment the lens unit must be zoomed from TELE to WIDE and back to TELE to activate the focus.

[Note 2]
Using the zoom controls on the EVR disables the Zoom controls of TELE/WIDE button on the camera.
Therefore, use EVR([SHIFT 2 + 7] or [SHIFT 2 + 5]) to move zoom for the TELE or WIDE position.
13. When lens focus comes to the correct position cat fully TELE Side), Push the following keys in order for store the data to EEPROM directly.
* [CMD], [1], [2].
* [ADR], [1], [F].
* [SET].

If the lens assembly cannot be focused, the Focus Encoder C.B.A. must be repositioned.
Turn the focus ring clockwise.
* If the focus improves more, the Focus Encoder C.B.A. to the rear.
* If the focus deteriorates more, the Focus Encoder C.B.A. to the front.
Return to Step(6) to reposition the Focus Encoder C.B.A..

<Adjustment for Wide Side>

14. Check the Voltage at B303-8 (VFK0734W-PIN 8).
15. Subtract the voltage that was noted at step(2) from the voltage at step(14).
For example:
If the voltage at B303−8(VFK0734W−PIN8) is 3.662V.
3.662 − 2.196 = 1.466
16. Set the voltage at B303−17(VFK0734W−PIN17) to 1.466V with EVR as follows.
Push the following keys in order.
* [CMD], [1], [8].
* [ADR], [B], [3].
* Push [INC] or [DEC] until the voltage at B303−17(VFK0734W−PIN17) is 1.466V.
17. Push the following keys in order for store the data to EEPROM Directly.
* [CMD], [0], [2]. (Does not change the data).
* [ADR], [0], [F].
* [SET].

<Confirm the focus when zooming to Wide Side>
18. Turn OFF and ON the Power SW.
19. Set the focus system to Manual focus as step(7).
20. Check the back focus while Zooming.
(If back focus is not good refer to following table)

1) Focus is not good at full wide side.

Adjust the data of ADR "B3" at the full Wide Side keeping the voltage at B303−(18) within +− 0.05V of the voltage in Step(16).

Check back focus While Zooming.
* If back focus is good, go to Step(19).
* If back focus is not good, stop the zoom at the position of bad focus.
Turn the focus ring clockwise and/or counter−clockwise.

If focus improves when the focus ring is turned counter−clockwise reposition the Focus Encoder C.B.A. to the front.

If focus improves when the focus ring is turned clockwise, reposition the Focus Encoder C.B.A. to the rear.

Return to Step(5) to reposition the Focus Encoder C.B.A.

2) Focus is not good−between TELE and WIDE.
Stop the zoom at the position of bad focus.
Turn the focus ring clockwise and/or counter−clockwise.
* If focus improves when the focus ring is turned counter−clockwise, reposition the Focus Encoder C.B.A. to the front.
* If focus improves when the focus ring is turned clockwise, reposition the Focus Encoder C.B.A. to the rear.
Return to Step(5) to reposition the Focus Encoder C.B.A..

7. V-SUB ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B6	—	HALOGEN LAMP	MONITOR TV
12	—	2F		
SPEC.			TP	
NO BLOOMING				

1. Zoom all the way in (full tele position or full wide position) and aim the camera at the Halogen Lamp as shown in Fig.C12.
2. Set the High Speed Shutter SW to "OFF" position.
3. Diffuse the incoming light using frosted glass or acryl plate. Place the cardboard which has been cut to "U" shape as shown in Fig.C12. between the diffusion plate and the camera.
4. Set the Iris to fully open [SHIFT 1 + 0].

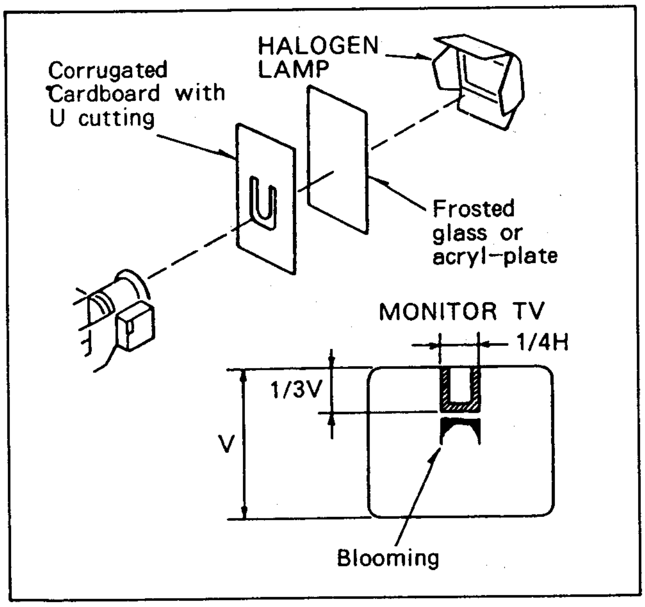

HALOGEN LAMP
Corrugated Cardboard with U cutting
Frosted glass or acryl-plate
MONITOR TV
1/4H
1/3V
V
Blooming

Fig. C12

<Adjustment>
Push the following keys in order.

5. * [CMD], [1], [8].
   * [ADR], [B], [6].
6. * Push [INC], or [DEC] keys until the blooming disappears (If blooming does not disappear completely, adjust until the blooming mimize).

<Data Writing>

Push the following keys in order.

7. * [CMD], [1], [2].
   * [ADR], [2], [F].
   * [SET].
   * [SHIFT 1 + A]. (Iris is return to Auto Mode.)
8. Confirm that the monitored picture does not contain Blooming in both High Speed Shutter "ON" and "OFF" modes even if the camera moves as shown in Fig.C13.

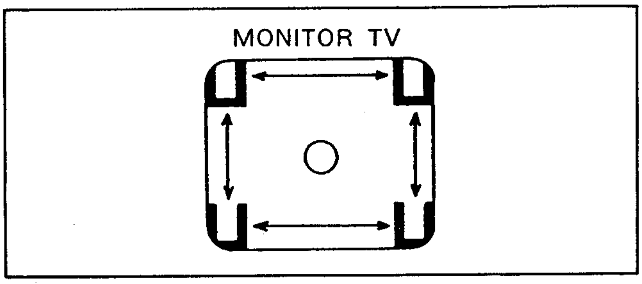
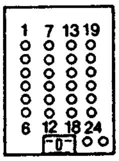


Fig. C13

8. PEDESTAL LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	BA	—		OSCILLO-SCOPE
12	—	4F		
SPEC.			TP	
A=0mV±10mV			B303-6 (VFK0734W-6) VFK0734W-REAR 	

1 7 13 19
6 12 18 24
0

<Preparation>

1. Cover the lens.
   Push [SHIFT 1 + 3] keys (Maximizes AGC Gain).
   Push [SHIFT 1 + 9] keys (Making Iris manual condition).
2. Connect the oscilloscope to B303-6(VFK0734W-PIN6).

<Adjustment>

Push the following keys in order.

3. * [CMD], [1], [8].
   * [ADR], [B], [A].
4. * Push [INC] or [DEC] keys until the "A" level is minimized, as shown in Fig.C14.

<Data writing>

Push the following keys in order.

5. * [CMD], [1], [2].
   * [ADR], [4], [F].
   * [SET].
6. * [SHIFT 1 + A]. (Iris is return to Auto Mode.)

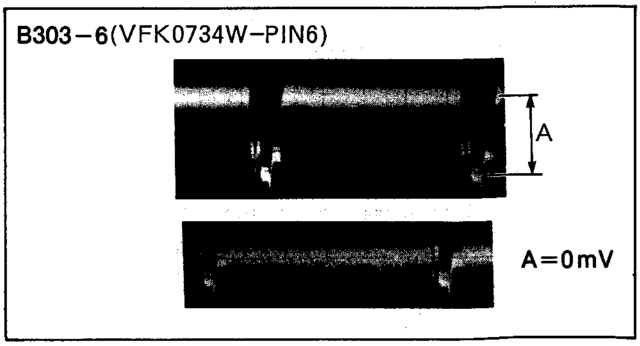
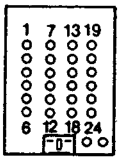

B303-6(VFK0734W-PIN6)
A
A=0mV

Fig. C14

9. AGC ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	BC	—	GRAY SCALE CHART	OSCILLO-SCOPE
12	—	6A		
SPEC.			TP	
230mV±20mV			B303-5 (VFK0734W-PIN 5) B303-20 (VFK0734W-PIN 20) VFK0734W-REAR 	

Purpose:
Set standard signal gain.

Symptom of Misadjustment:
The picture is sometimes too dark or too bright.

< Preset for AGC Adjustment >

1. Making Iris manual condition [SHIFT 1+9].
2. Aim the camera at Gray Scale Chart.
3. Connect the Oscilloscope to B302-5. (VFK0734W-PIN5)

<Preset 1-Rough>
Push the following keys in order.

4. * [CMD], [1], [8].
   * [ADR], [D], [F].
5. * Push [INC] or [DEC] keys until signal level at B303-5(VFK0734W-PIN5) is 300mV +- 10mV.

<Preset 2-Fine>
Push the following keys in order.

6. * [CMD], [1], [8].
   * [ADR], [D], [E].
7. * Push [INC] or [DEC] keys until signal level at B303-5(VFK0734W-PIN5) is 300mV +- 10mV.

<AGC Adjustment>
Push the following keys in order.

8. * [CMD], [1], [8].
   * [ADR], [B], [C].
9. * Push [INC] or [DEC] keys until the signal level at B303-20(VFK0734W-PIN20) is 300mV +- 20mV.

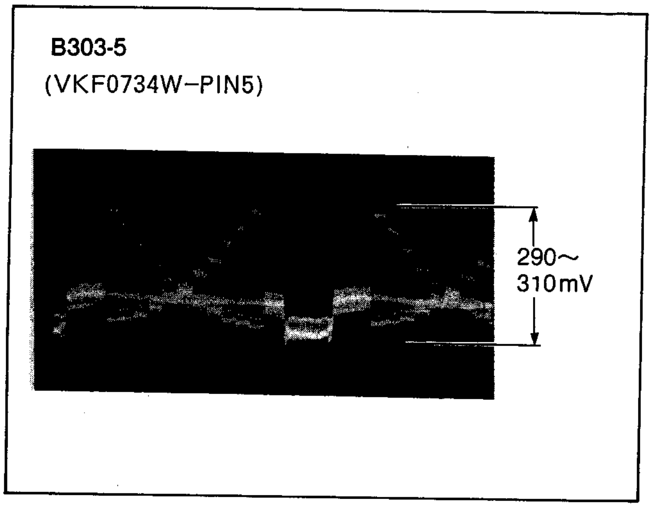


Fig. C15-1

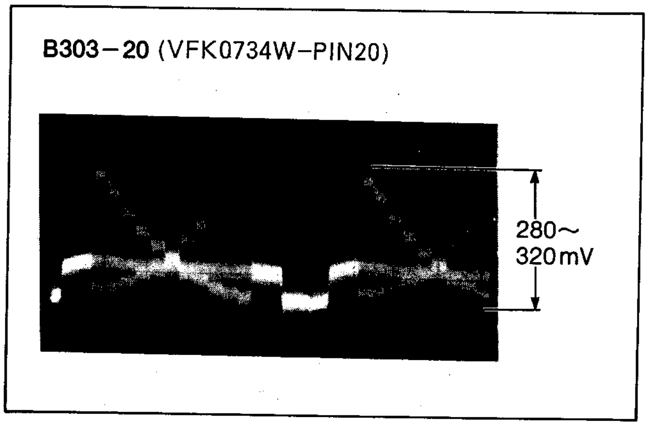
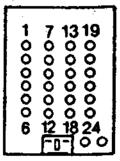


Fig. C15-2

< Data Writing >
Push the following keys in order.

10. * [CMD], [1], [2]. (Does not change the Data).
    * [ADR], [6], [A].
    * [SET].
11. * Push [SHIFT 1+A] keys (Iris return to Auto mode)

10. A/D INPUT LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B1	—	GRAY SCALE CHART	OSCILLO-SCOPE
12	—	0F		
SPEC.			TP	
1.2V±40mV			B303-5 (VFK0734W-PIN 5) B303-6 (VFK0734W-PIN 6) 	

Purpose:
A/D converter input Level adjustment.

Symptom of Misadjustment:
The picture is too dark or too bright.

< Preset for AGC Adjustment >

1. Making Iris manual condition [SHIFT 1+9].
2. Aim the camera at Gray Scale Chart.
3. Connect the Oscilloscope to B302-5. (VFK0734W-PIN5)

< Preset 1-Rough >

Push the following keys in order.

4. * [CMD], [1], [8].
   * [ADR], [D], [F].
5. * Push [INC] or [DEC] keys until signal level at B303-5 (VFK0734W-PIN5) is 300mV+-10mV.

< Preset 2-Fine >

Push the following keys in order.

6. * [CMD], [1], [8].
   * [ADR], [D], [E].
7. * Push [INC] or [DEC] keys until signal level at B303-5 (VFK0734W-PIN5) is 300mV+-10mV.

< A/D Input level Adjustment >

8. * [CMD], [1], [8].
   * [ADR], [B], [1].
9. * Push [INC] or [DEC] keys until the signal level at B303-6 (VFK0734W-PIN6) is 1.2V+-40mV.

< Data Writing >

Push the following keys in order.

10. * [CMD], [1], [2]. (Does not change the Data)
    * [ADR], [0], [F].
    * [SET].

Push [SHIFT 1+A] keys. (Iris return to Auto mode)

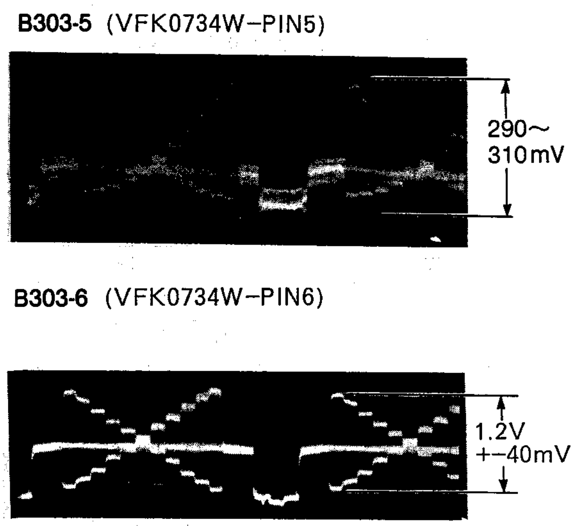
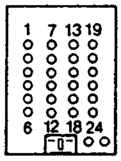


Fig. C16

11. ALC ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	D4	—	GRAY SCALE CHART	OSCILLOSCOPE
02	—	2C		
SPEC.			TP	
1.20V±40mV			B303-6 (VFK0734W-PIN 6) 	

Note:
Perform this adjustment after finishing the AGC and A/D INPUT LEVEL ADJUSTMENT.

Purpose:
ALC level adjustment.

Symptom of Misadjustment:
The picture is too white or too dark.

<Preparation>

1. Set the IRIS to Auto [SHIFT 1 + A].
2. Aim the camera at Gray Scale Chart.
3. Connect the oscilloscope to B303-6(VFK0734W-PIN6).

<Adjustment>

Push the following keys in order.

4. * [CMD], [1], [8].
   * [ADR], [D], [4].
5. * Push [INC] or [DEC] keys until the signal level at B303-6(VFK0734W-PIN6) is 1.20V +-40mV.

<Data Writing>

Push the following keys in order.

6. * [CMD], [0], [2]. (Does not change the Data)
   * [ADR], [2], [C].
   * [SET].

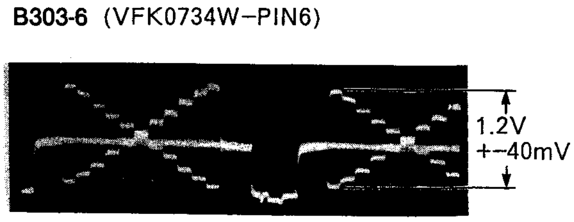


Fig. C17

12. MANUAL IRIS ADJUSTMENT

NO.	ITEM	EEPROM ADDRESS	FORMULA	CMD	RESULT OF CALCULATION
1	OPEN1	4C (High digit)	ADR (2C)+24	READ: 04 WRITE: 12	
2	OPEN2	4C (Low digit)	ADR (4C)+24	READ: 14 WRITE: 02	
3	OPEN3	5C (High digit)	ADR (4C)+24	READ: 04 WRITE: 12	
4	CLOSE1	4D (High digit)	ADR (2C)−16	READ: 04 WRITE: 12	
5	CLOSE2	4D (Low digit)	ADR (4D)−16	READ: 14 WRITE: 02	
6	CLOSE3	5D (High digit)	ADR (4D)−16	READ: 04 WRITE: 12	

Note 1:
ADR(2C) = ALC Data

Note 2:
If the ALC Adjustment is incorrect the Manual Iris SET UP will also be incorrect.
Be sure to carry out the ALC Adjustment procedure correctly before doing the Manual Iris Adjustment.

<Calculation for Manual IRIS>
Push [SHIFT 2 + 9] keys simultaneously.
(All formulas for Manual Iris are performed and results are stored into EEPROM Automatically

The following calculation are for reference only.

* Example
Item 1 : OPEN 1
Formula : ADR(2C)+24

Read out the data From Address(2C) of EEPROM as follows.

* Select read command(04) => Push [CMD],[0],[4].
* Select Address(2C) => Push [ADR],[2],[C].
* Push (SET) to Read the data => Push [SET].

When the (SET) key is pushed, the data LED will indicate the data of Address(2C).
Convert this data to decimal.
If data LED indicate(6D).
HEX(6D) = 109(Decimal Value)

Now using the formula (2C)+24 Calculate the Reset. (Substitute the Decimal Value for the HEX data in (2C)109+24=133.

Convert the Result to a HEX Value using the table (Fig.C18)
133(decimal)=85(in HEX CODE)

Store the above HEX Value in the EEPROM. Address(4C) High digit as follows.

* Select command(12) => Push [CMD],[1],[2].
* Select Address(4C) => Push [ADR],[4],[C].
* Set the data(85) => Push [DATA],[8],[5].
* Push (SET) to write the data => Push [SET].

Note 4:
Priority of Formula.

ADR "2C"(Low digit) = ALC Adjustment

1. OPEN 1 : "4C"(High digit) =

ADR "2C"(Low digit)+24

2. OPEN 2 : "4C"(Low digit) =

ADR "4C"(High digit)+24

3. OPEN 3 : "5C"(High digit) =

ADR "4C"(Low digit)+24

ADR "2C"(Low digit) = ALC Adjustment

4. CLOSE 1 : "4D"(High digit) =

ADR "2C"(Low digit)−16

5. CLOSE 2 : "4D"(Low digit) =

ADR "4D"(High digit)−16

6. CLOSE 3 : "5D"(High digit) =

ADR "4D"(Low digit)−16

Hexadecimal lower digit / Hexadecimal upper digic	0	1	2	3	4	5	6	7	8	9	A	b	C	② d	E	F
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
① 6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
b	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
d	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

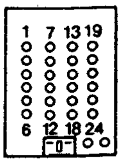
For example: If indication of EVR is "6D" (as upper digit is "6" and lower digit is "D"), a decimal value of "109" is obtained from the intersection of ① and ② in the above table.

Fig. C18 Hexadecimal–Decimal Conversion Table

(Hexadecimal–Decimal Conversion Table)

For some of adjustment items, calculation of hexadecimal data (indicated on LED of EVR Fixture) is needed to obtain the adjustment data.
In these cases, convert the hexadecimal value to decimal value before calculation and after calculation is finished reconvert the result to hexadecimal to obtain the adjustment data. Write the new hexadecimal adjustment data into EEPROM.
A hexadecimal–decimal conversion table is shown in Fig.C18.

13. Y CLIP LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B9	—	WHITE CHART	OSCILLOSCOPE
02	—	3F		
SPEC.			TP	
V/S=5.5 : 2			B303-4 (VFK0734W-PIN 4) VFK0734W-REAR  	

<Preparation>
1. Set the IRIS to "OPEN". [SHIFT1 + 0].
2. Aim the camera at white chart.
3. Connect the Oscilloscope to B303–4. (VFK0734W–PIN4)

<Adjustment>
Push the following keys in order.
4. * [CMD], [1], [8].
   * [ADR], [B], [9].
5. * Push [INC] or [DEC] keys until raito of V and S is 5.5 : 2.

<Data Writing>
Push the following keys in order.
6. * [CMD], [0], [2]. (Does not change the data)
   * [ADR], [3], [F].
   * [SET].
7. * [SHIFT 1 + A] (IRIS return to Auto Mode)

B303–4 (VFK0734W–PIN4)

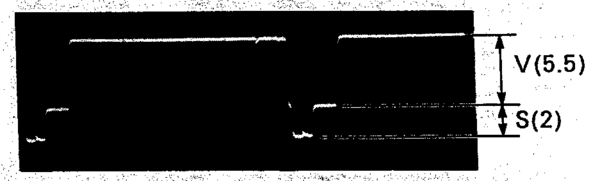


Fig. C19

14. INDOOR WHITE BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ
	RAM	EEPROM		
09	BB (R-Y) AB (B-Y)	—	WHITE CHART	VECTOR-SCOPE OR OSCILLO-SCOPE
02	—	25 (R-Y)		
12	—	25 (R-Y)		

SPEC.	TP
VECTOR COMES CENTRE OR WAVEFORM IS MINIMIZED	VIDEO OUT
CONDITION	
IRIS: ALC	

<Preparation>
1. Connect the Video out to Vectorscope.
2. Aim the camera at white chart.
   And Push [SHIFT 1 + 8] for white set.
   (Please confirm, vector came to center)

<Read Out the data for R–Y>
Push the following keys in order.
3. * [CMD], [0], [9].
   * [ADR], [B], [B].
   * [SET].
   (When the pushed [SET] key, Data LED of EVR indicate the data of white balance for R–Y)

<Data Writing for R–Y>
Push the following keys in order.
4. * [CMD], [0], [2]. (Do not change the data)
   * [ADR], [2], [5].
   * [SET].

<Read Out the data for B–Y>

Push the following keys in order.
5. * [CMD], [0], [9].
   * [ADR], [A], [B].
   * [SET].

   (When the pushed [SET] key, Data LED of EVR indicate the data of white balance for B–Y)

<Data writing for B–Y>
Push the following keys in order.
6. * [CMD], [1], [2]. (Do not change the data)
   * [ADR], [2], [5].
   * [SET].

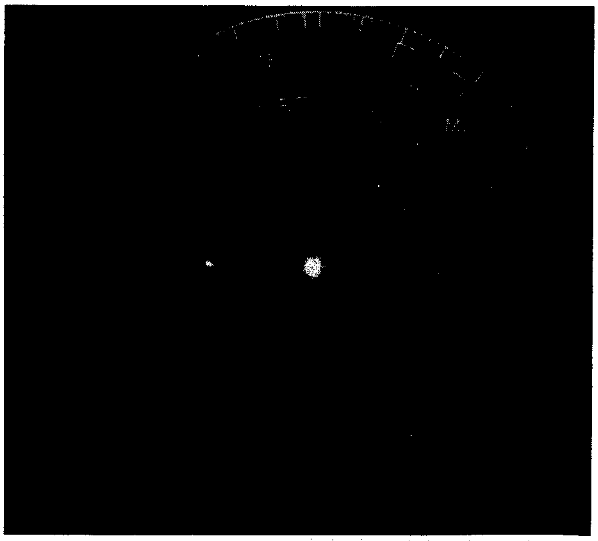


Fig. C20

15. COLOUR PHASE AND GAIN ADJUSTMENT (INDOOR)

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
08	95 (R-Y G) 97 (R-Y P) 94 (B-Y G) 96 (B-Y P)	—	COLOUR BAR CHART	VECTOR SCOPE
02	—	05 (R-Y G) 15 (R-Y P)		
12	—	05 (B-Y G) 15 (B-YP)		

SPEC.	TP
RED: 104+−3 degree/PHASE 190%+−10%/GAIN (RED/BURST) 168+−3 degree/PHASE 140%+−10%/GAIN (Yellow/BURST)	VIDEO OUT

Note:

Be sure to carry out the Indoor White Balance Adjustment before doing this Adjustment.

1. Aim the camera at Colour Bar Chart.
2. Connect the Video out to vectorscope.

<R−Y GAIN>
(Step3 to 5 are R−Y Gain Adjustment)

Push the following keys in order.

3. * [CMD], [0], [8].
   * [ADR], [9], [5].
4. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C21.

<Data Writing for R−Y Gain>
Push the following keys in order.

5. * [CMD], [0], [2]. (Does not change the data)
   * [ADR], [0], [5].
   * [SET].

<R−Y PHASE>
(Step6 to 8 are R−Y Phase Adjustment)
Push the following keys in order.

6. * [CMD], [0], [8].
   * [ADR], [9], [7].
7. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C21.

<Data Writing for R−Y Phase>

Push the following keys in order.

8. * [CMD], [0], [2]. (Does not change the data)
   * [ADR], [1], [5].
   * [SET].

<B−Y Gain>
(Step9 to 11 are B−Y Gain Adjustment)
Push the following keys in order.

9. * [CMD], [0], [8].
   * [ADR], [9], [4].
10. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C21.

<Data Writing for B−Y GAIN>
Push the following keys in order.

11. * [CMD], [1], [2].
    * [ADR], [0], [5].
    * [SET].

<B−Y PHASE>
(Step12 to 14 are B−Y PHASE Adjustment)
Push the following keys in order.

12. * [CMD], [0], [8].
    * [ADR], [9], [6].
13. * Push [INC] or [DEC] keys until phase of red and Yellow Vectors are as close as possible to Spec. See Fig.C21.

<Data Writing for B−Y PHASE>
Push the following keys in order.

14. * [CMD], [1], [2].
    * [ADR], [1], [5].
    * [SET].
15. Repeat the Step(3) to Step(14) unit vectors becomes within Spec.

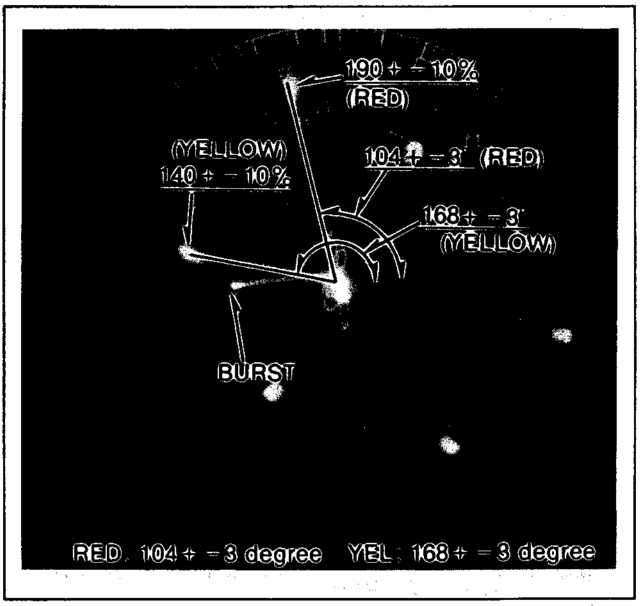


Fig. C21

16. OUTDOOR WHITE BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ
	RAM	EEPROM		
09	BB (R-Y) AB (B-Y)	—	WHITE CHART	VECTOR-SCOPE OR OSCILLO-SCOPE
02	—	21 (R-Y)		
12	—	21 (B-Y)		

SPEC.	TP
VECTOR COMES CENTRE OR WAVEFORM IS MINIMIZED	VIDEO OUT
CONDITION	
TEMPERATURE CONVERSION FILTER: VFK0713 (C12) VFK0716 (C2) IRIS: ALC	

Purpose:
Set standard white level for each colour temperature.

Symptom of Misadjustment:
White becomes bluish or reddish.

<Preparation>

1. Connect the Video Out to Vectorscope.
2. Cover the lens with colour temperature conversion filter VFK0713 and VFK0716 to imitate the Outdoor lighting.
3. Aim the camera at white chart, and push [SHIFT 1 + 8] keys for white set.
   (Please confirm, vectors came to center)

<Read Out the data for R–Y>

Push the following keys in order.

4. * [CMD], [0], [9].
   * [ADR], [B], [B].
   * [SET].
   (When the pushed [SET] key, Data LED of EVR indicate the data of white balance for R–Y)

<Data Writing for R–Y>

Push the following keys in order.

5. * [CMD], [0], [2]. (Does not change the data)
   * [ADR], [2], [1].
   * [SET].

<Read Out the data for B–Y>
Push the following keys in order.

6. * [CMD], [0], [9].
   * [ADR], [A], [B].
   * [SET].

   (When the pushed [SET] key, data LED of EVR indicate the data of white balance for B–Y)

<Data Writing for B–Y>
Push the following keys in order.

7. * [CMD], [1], [2]. (Does not change the data)
   * [ADR], [2], [1].
   * [SET].

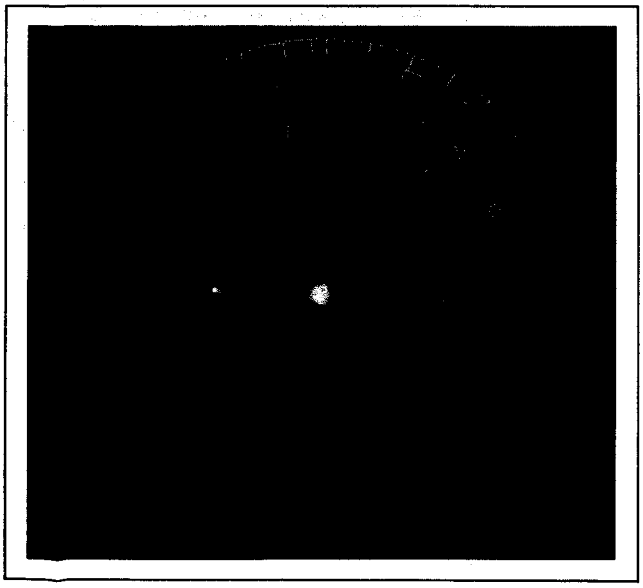


Fig. C22

17. COLOUR PHASE AND GAIN ADJUSTMENT (OUTDOOR)

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
08	95 (R-Y G) 97 (R-Y P) 94 (B-Y G) 96 (B-Y P)	—	COLOUR BAR CHART	VECTOR SCOPE
02	—	01 (R-Y G) 11 (R-Y P)		
12	—	01 (B-Y G) 11 (B-YP)		

SPEC.	TP
RED: 104+−3 degree/ PHASE, 190%+−10% GAIN (Red/BURST) YEL: 168+−3 degree/ PHASE, 140%+−10% GAIN Yellow/BURST)	VIDEO OUT

Note:
Be sure to carry out the Outdoor white balance Adjustment before doing this Adjustment.

<Preparation>

1. Connect the Video output to vectorscope.
2. Aim the camera at colour bar chart and cover the lens with colour temperature conversion filter VFK0713 (C12) and VFK0716 (C2) to imitate the out door lighting.

<R–Y Gain>
(Step3 to 5 are R–Y Gain Adjustment)

Push the following keys in order.

3. * [CMD], [0], [8].
   * [ADR], [9], [5].
4. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C22.

<Data Writing for R–Y Gain>
Push the following keys in order.

5. * [CMD], [0], [2]. (Do not change the data)
   * [ADR], [0], [1].
   * [SET].

<R–Y PHASE>
(Step6 to 8 are R–Y Phase Adjustment)

Push the following keys in order.

6. * [CMD], [0], [8].
   * [ADR], [9], [7].
7. * Push the [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C23.

<Data Writing for R–Y Phase>

Push the following keys in order.

8. * [CMD], [0], [2]. (Do not change the data)
   * [ADR], [1], [1].
   * [SET].

<B-Y Gain>
(Step9 to 11 are B-Y Gain Adjustment)

Push the following keys in order.

9. * [CMD], [0], [8].
   * [ADR], [9], [4].
10. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C23.

<Data Writing for B-Y Gain>

Push the following keys in order.

11. * [CMD], [1], [2]. (Do not change the data)
   * [ADR], [0], [1].
   * [SET].

<B-Y PHASE>
(Step12 to 14 are B-Y Phase Adjustment)

Push the following keys in order.

12. * [CMD], [0], [8].
   * [ADR], [9], [6].
13. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C23.

<Data Writing for B-Y Phase>

Push the following keys in order.

14. * [CMD], [1], [2]. (Do not change the data)
   * [ADR], [1], [1].
   * [SET]
15. Repeat the Step(3) to Step(14) until vectors becomes within Spec. as shown in Fig.C23.

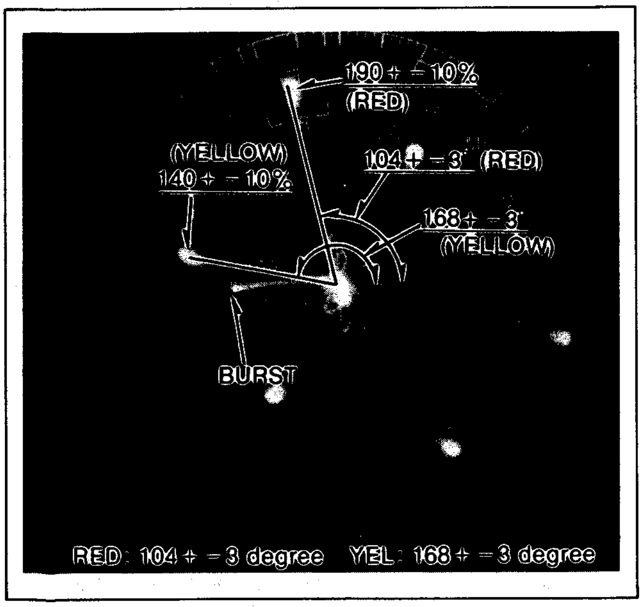


Fig. C23

18. DATA WRITING FOR COLOUR REPRODUCTION AND WHITE BALANCE

Purpose:
Each adjustment voltage is recorded in EEPROM as digital data. For colour reproduction adjustments such as white balance, phase and gain adjustments, the adjustments have only been performed for indoor lighting (3200 degree kelvin) and outdoor lighting (5600 degree kelvin). The EEPROM requires the data for other lighting conditions such as 3600 degree kelvin, 4500 degree kelvin and 6000 degree kelvin. In order to supply the rest of the data the following calculation has to be done and the results entered in the proper address of EEPROM.

Misentering:
White balance and colour reproduction in lighting conditions between indoor and outdoor are poor.

Note 1:
VFK0701ROM11 (New ROM) for EVR must be installed in EVR fixture.
Mode selector should be "B" side.

1. **Push [SHIFT 2 + 1] key simultaneously.**
(All formulas in Fig.C24, are performed and results stored in EEPROM automatically)

Note 2:
How to calculate and enter the data manually.
You can do calculation and entering the data to EEPROM manually as follows;

(For example)
ITEM : R-Y GC 36

FORMULA : ADR05+0.944x(ADR01−ADR05)

EEPROM ADDRESS : 03

1) Read Out the data.
ADR05 : Set the command to "04".
Set the address to "05".
Push the "SET" button.
The number which is indicated in "DATA" LED is a data of ADR05(Address "05") for example, if indicated data is "56", substitute "56" to ADR05. (This is hexadecimal number)
The same as above, read out the data from address "01".
For example if data which is read out is ADR01="6C", ADR05="56" above formula becomes;
R-Y GC 36 = 56+0.944X(6C−56).
2) Convert the hexadecimal data into decimal number using conversion table. (Shown in Fig.C18) For example, "56" in hexadecimal is "86" in decimal from intersection of 5 and 6.
Substitute it into the formula.
Therefore,
R-Y GC 36 = 86+0.944x(108−86)
= 86+0.882x(22)
= 105
3) Convert the result "105" to hexadecimal using conversion table (Fig.C18).
"105" decimal is "69" in hexadecimal.
Write the "69" into EEPROM address "03".
* Set the command to [02].
* Set the address to [03].
* Set the data [69].
* Push the [SET] key.

Calculation for Colour Reproduction

NBR	ITEM	EEPROM ADDRESS	CMD	RESULT OF CALCULATION	FORMULA
(1)	R-Y GC 36	03 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 0.944 × (ADR “01” − ADR “05”)
(2)	R-Y GC 45	02 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 1.000 × (ADR “01” − ADR “05”)
(3)	R-Y GC 28	06 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 0.412 × (ADR “01” − ADR “05”)
(4)	R-Y GC 60	00 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 1.000 × (ADR “01” − ADR “05”)
(5)	R-Y GC 33	04 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 0.944 × (ADR “01” − ADR “05”)
(6)	R-Y MAT 28	16 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15” + 0.000 × (ADR “11” − ADR “15”)
(7)	R-Y MAT 36	13 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15” + 0.741 × (ADR “11” − ADR “15”)
(8)	R-Y MAT 45	12 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15” + 1.000 × (ADR “11” − ADR “15”)
(9)	R-Y MAT 60	10 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15” + 1.000 × (ADR “11” − ADR “15”)
(10)	R-Y MAT 33	14 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15” + 1.741 × (ADR “11” − ADR “15”)
(11)	B-Y GC 28	06 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” + 0.333 × (ADR “01” − ADR “05”)
(12)	B-Y GC 36	03 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” + 0.889 × (ADR “01” − ADR “05”)
(13)	B-Y GC 45	02 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” + 1.000 × (ADR “01” − ADR “05”)
(14)	B-Y GC 60	00 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” + 1.000 × (ADR “01” − ADR “05”)
(15)	B-Y GC 33	04 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” − 0.889 × (ADR “01” − ADR “05”)
(16)	B-Y MAT 28	16 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15” + 0.000 × (ADR “11” − ADR “15”)
(17)	B-Y MAT 36	13 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15” − 0.000 × (ADR “11” − ADR “15”)
(18)	B-Y MAT 45	12 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15” + 1.000 × (ADR “11” − ADR “15”)
(19)	B-Y MAT 60	10 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15” + 1.000 × (ADR “11” − ADR “15”)
(20)	B-Y MAT 33	14 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15”
(21)	R-Y WB 28	26 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.333 × (ADR “21” − ADR “25”)
(22)	R-Y WB 33	24 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.119 × (ADR “21” − ADR “25”)
(23)	R-Y WB 36	23 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.237 × (ADR “21” − ADR “25”)
(24)	R-Y WB 45	22 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.157 × (ADR “21” − ADR “25”)
(25)	R-Y WB 49	29 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.000 × (ADR “21” − ADR “25”)
(26)	R-Y WB 60	20 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.214 × (ADR “21” − ADR “25”)
(27)	R-Y WB L-LIM	27 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.214 × (ADR “21” − ADR “25”)
(28)	R-Y WB H-LIM	28 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.000 × (ADR “21” − ADR “25”)
(29)	B-Y WB 28	26 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.154 × (ADR “21” − ADR “25”)
(30)	B-Y WB 33	24 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.025 × (ADR “21” − ADR “25”)
(31)	B-Y WB 36	23 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.050 × (ADR “21” − ADR “25”)
(32)	B-Y WB 45	22 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.519 × (ADR “21” − ADR “25”)
(33)	B-Y WB 49	29 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.000 × (ADR “21” − ADR “25”)
(34)	B-Y WB 60	20 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.288 × (ADR “21” − ADR “25”)
(35)	B-Y WB L-LIM	27 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.288× (ADR “21” − ADR “25”)
(36)	B-Y WB H-LIM	28 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.000 × (ADR “21” − ADR “25”)

Calculation for Auto White Balance

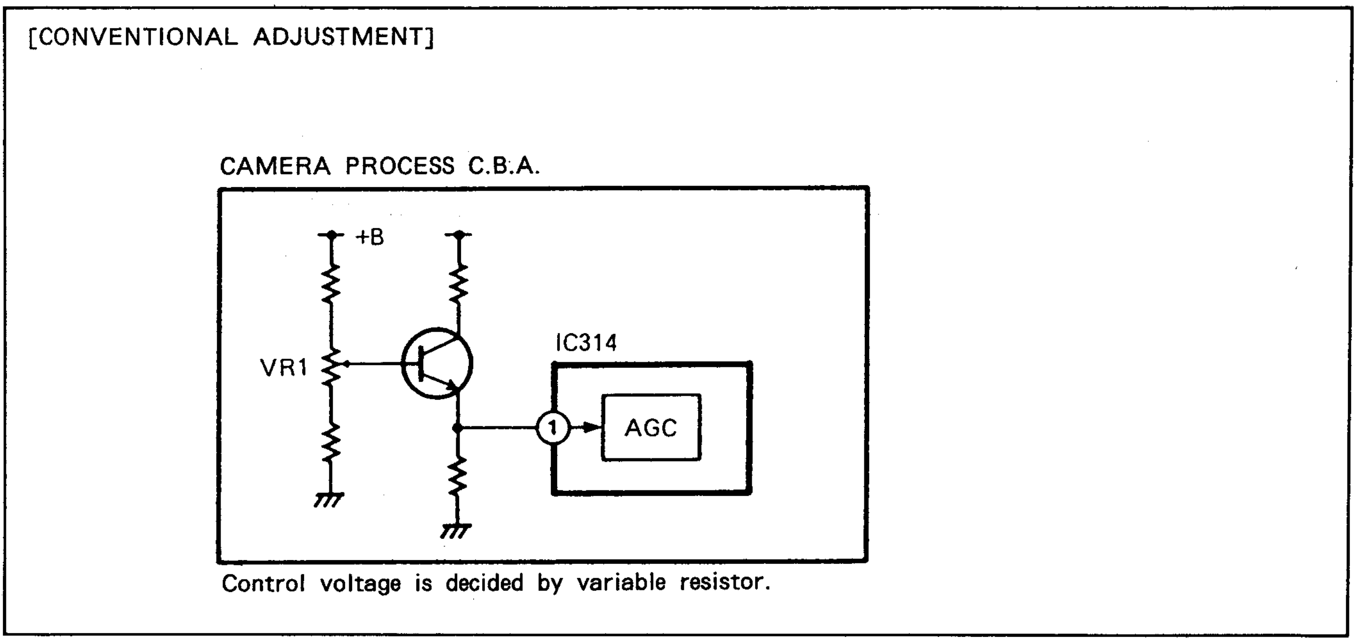
NBR	ITEM	EEPROM ADDRESS	CMD	RESULT OF CALCULATION	FORMULA
(1)	BH 28	46 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.038 × (ADR “21” − ADR “25”)
(2)	BH 30	45 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.038 × (ADR “21” − ADR “25”)
(3)	BH 36	43 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.288 × (ADR “21” − ADR “25”)
(4)	BH 45	42 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.019 × (ADR “21” − ADR “25”)
(5)	BH 51	41 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.769 × (ADR “21” − ADR “25”)
(6)	BH 60	40 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.731 × (ADR “21” − ADR “25”)
(7)	BH TR	48 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.288 × (ADR “21” − ADR “25”)
(8)	BH SKY	47 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.789 × (ADR “21” − ADR “25”)
(9)	Baxisth	4A (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.769 × (ADR “21” − ADR “25”)
(10)	BL 28	36 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.481 × (ADR “21” − ADR “25”)
(11)	BL 30	35 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.481 × (ADR “21” − ADR “25”)
(12)	BL 36	33 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.615 × (ADR “21” − ADR “25”)
(13)	BL 45	32 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.769 × (ADR “21” − ADR “25”)
(14)	BL 51	31 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.731 × (ADR “21” − ADR “25”)
(15)	BL 60	30 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.789 × (ADR “21” − ADR “25”)
(16)	BL TR	38 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.769 × (ADR “21” − ADR “25”)
(17)	BL SK	37 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “00”
(18)	RH 28	46 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.949 × (ADR “21” − ADR “25”)
(19)	RH 30	45 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.949 × (ADR “21” − ADR “25”)
(20)	RH 36	43 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.167 × (ADR “21” − ADR “25”)
(21)	RH 45	42 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.431 × (ADR “21” − ADR “25”)
(22)	RH 51	41 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.429 × (ADR “21” − ADR “25”)
(23)	RH 60	40 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.929 × (ADR “21” − ADR “25”)
(24)	RH TR	48 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.381 × (ADR “21” − ADR “25”)
(25)	RH SK	47 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.929 × (ADR “21” − ADR “25”)
(26)	Rxisth	4A (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.431 × (ADR “21” − ADR “25”)
(27)	RL 28	36 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.949 × (ADR “21” − ADR “25”)
(28)	RL 30	35 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.167 × (ADR “21” − ADR “25”)
(29)	RL 36	33 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.431 × (ADR “21” − ADR “25”)
(30)	RL 45	32 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.381 × (ADR “21” − ADR “25”)
(31)	RL 51	31 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.730 × (ADR “21” − ADR “25”)
(32)	RL 60	30 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.810 × (ADR “21” − ADR “25”)
(33)	RL TR	38 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.881 × (ADR “21” − ADR “25”)
(34)	RL SK	37 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.881 × (ADR “21” − ADR “25”)

19. ADDITIONAL FOR HOW TO USE E.V.R.

E.V.R. FIXTURE

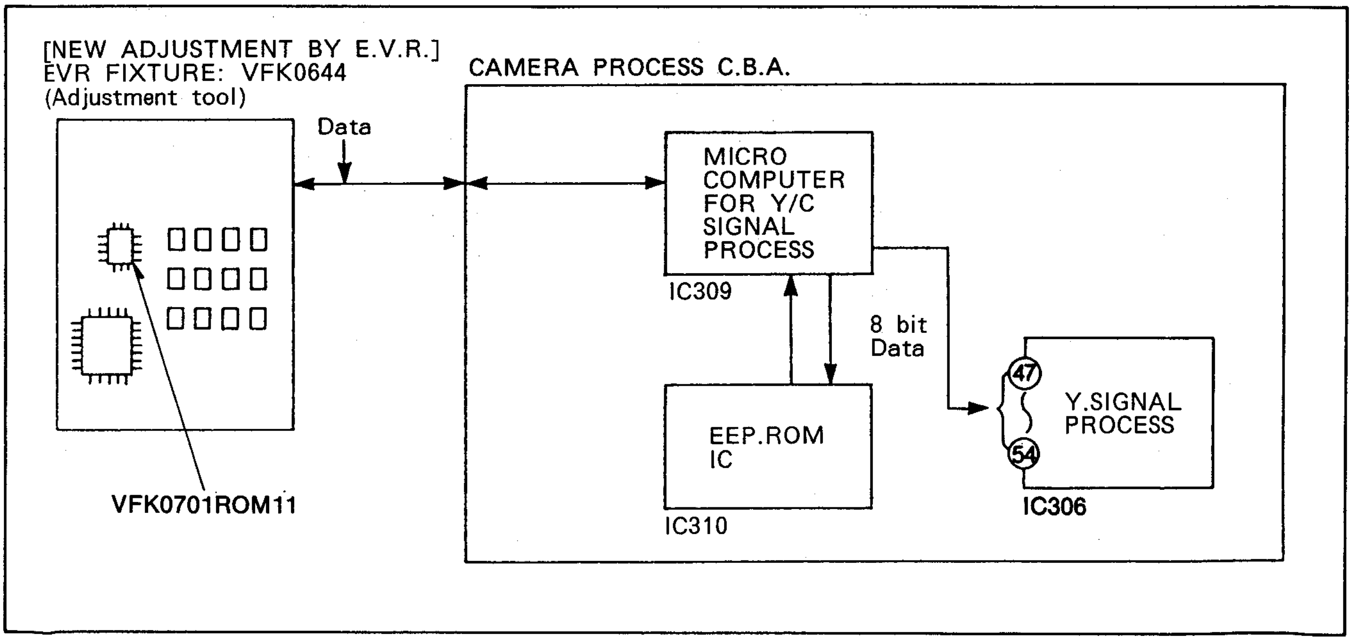
Camera Process section uses a memory IC called a E.E.P.R.O.M.(Electrical Erasable Programmable Read Only Memory) that replaces the variable resistor in conventional camera process. In the conventional camera process, each adjustment point was adjusted by turning variable resistors as shown in Fig.C25. In the Movie Camera adjustment voltage is recorded in the EEPROM as 8 bit digital data. The EEPROM supplies the recorded adjustment voltage to the adjustment point as shown in Fig.C26.

The data in the EEPROM can be changed electrically. The E.V.R.(Electric Variable Resistor) has been designed to change the 8 bit data of EEPROM in process circuit. The E.V.R. can also communicate directly with the RAM of the micro processor to change each control voltage. In normal operation the EEPROM would send the voltage data to RAM where the digital data is used to changed the adjustment values in the various circuits. Using the E.V.R. you can change the data stored in the EEPROM easily there by adjusting the camera process section. And the E.V.R. can also send the data to the RAM directly to confirm the adjustment.



[CONVENTIONAL ADJUSTMENT]
CAMERA PROCESS C.B.A.
+B
VR1
IC314
1
AGC
Control voltage is decided by variable resistor.

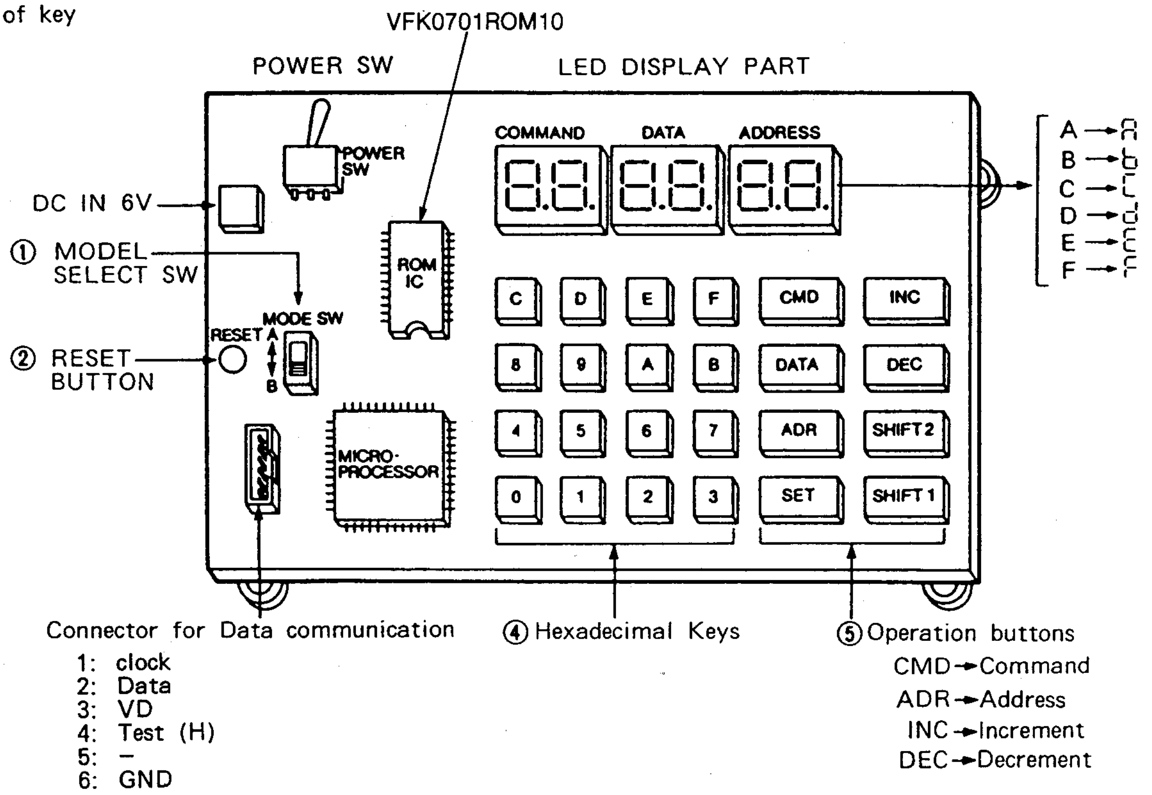
Fig. C25



[NEW ADJUSTMENT BY E.V.R.]
EVR FIXTURE: VFK0644
(Adjustment tool)
Data
VFK0701ROM11
CAMERA PROCESS C.B.A.
MICRO COMPUTER FOR Y/C SIGNAL PROCESS
IC309
8 bit Data
EEP.ROM IC
IC310
47
54
Y.SIGNAL PROCESS
IC306

Fig. C26

Name of key


VFK0701ROM10
POWER SW
LED DISPLAY PART
POWER SW
COMMAND
DATA
ADDRESS
DC IN 6V
① MODEL SELECT SW
ROM IC
MODE SW
RESET A
B
② RESET BUTTON
MICRO-PROCESSOR
C
D
E
F
CMD
INC
8
9
A
B
DATA
DEC
4
5
6
7
ADR
SHIFT 2
0
1
2
3
SET
SHIFT 1
A → A
B → b
C → C
D → d
E → E
F → F
Connector for Data communication
1: clock
2: Data
3: VD
4: Test (H)
5: –
6: GND
④ Hexadecimal Keys
⑤ Operation buttons
CMD → Command
ADR → Address
INC → Increment
DEC → Decrement

NO.	NAME	DESCRIPTION
①	MODE SW	MODEL selection switch. In case of this model turn it to A side.
②	RESET BUTTON	After Power is on, if operation is not stable, push this SW.
③	ROM IC	ROM IC of which Programing (to operate E.V.R) is memorized in. In the future, to cope with new camcorder servicing, this ROM IC could be replaced to new version.
④	HEXADECIMAL KEYS	Key buttons of 16 pieces (from "O" to "F"). These are used when "COMMAND", "DATA" or "ADDRESS" is set.
⑤	OPERATION BUTTONS	The buttons to operate writing, reading or setting the data.
	CMD: Command button	This is used to decide the which mode (command) between E.V.R and camcorder (for example, data writing or reading) to perform.
	DATA: Data button	For changing Data.
	ADR: Address button	To appoint the EEPROM address or RAM address.
	SET: Set button	To perform the appointed command (for example reading or writing).
	INC: Incliment DEC: Decliment	Increase or decrease the data one by one (+1, −1)
	SHIFT 1 button	To carry out macro operation (while pushing with hexadecimal keys) SHIFT 1 button is used. (Macro operations will be described later)
	SHIFT 2 button	To carry out macro operation(while pushing with hexadecimal keys) SHIFT 2 button is used (Macro operations will be described later.)

Fig. C27

(Before Adjusting How to use the E.V.R. Fixture)

1) How to read out the data which is being stored in EEPROM.
Connect the E.V.R. Fixture as shown in Fig.C3.

Result:
Adjustment value of AGC has been set for "6A". It is advisable to read out the data like this and make a note of it before writing the new data so that if a error should occur you can rewrite original data.

Item		Proceduring Order	Buttons to be Pushed	LED Indication
For Example, Reading out the data of AGC Adjustment comunication from camcorder to E.V.R. EEPROM→ E.V.R.	1	Set the Command mode to "14", "14" is read out command. (Refer to command description)	CMD 1 4	LED lights up 14/80 00 Command setting
	2	Set the Address of EEPROM	ADR 6 A	14 80 6A Address setting of EEPROM LED lights up
	3	Read out the data	SET Push this for 2 seconds	14 09 6A data for AGC for example LED lights up

Fig. C28

2) Writing the New Data.

(1) Search and Write Procedure
(For example : AGC Adjustment).

Confirmation:
Confirm whether data is written correctly or not.

Procedure:
1. Set the Command to [04].
2. Set the Address to [41].
3. Push the [SET] button.
4. The number which is indicated on DATA LED is a data which has been written.

Item		Proceduring Order	Buttons to be Pushed	LED Indication
For Example, writing the AGC adjustment data. E.V.R. → EEPROM	1	Set the command to "18".	CMD 1 8	Command for search mode.
	2	Set the Address of RAM to "BC" E.V.R.→ RAM (communication from E.V.R. to RAM)	ADR B C	LED lights up. 18/80 bC
	3	**Adjustment Push "DEC" or "INC" button so that AGC at B303–20 becomes 300mV±20mV.**	**Search with** INC or DEC	18 91 bC LED lights up
	4	Change the command to "12"	CMD 1 2	LED lights up 12/91 bC Command for Direct Writing

Fig. C29

Item		Proceduring Order	Buttons to be Pushed	LED Indication
	5	Set the address of EEPROM to "6A"	ADR 6 A	address of EEPROM 02 91 6C LED lights up
	6	**Do not change the data after adjustment**	DATA 9 1	02 91 6C LED lights up
	7	Write the data	SET Push this for 2sec.	LED disappear 02 91 6C

Fig. C30

3) Direct Writing Procedure

Item		Proceduring Order	Buttons to be Pushed	LED Indication
For Example, writing the AGC adjustment data	1 2 3	**Searching the best Point.** **same as (1)**	**same as (2)**	**same as (2)**
	4	Change the command to "12"	CMD 1 2	LED lights up 12/80 00 Command for Direct writing
	5	Set the address of EEPROM to "6A"	ADR 6 A	address of EEPROM 12 00 6A LED lights up
	6	Set the data of best point "91"	DATA 9 1	12 91 6A LED lights up
	7	**Write the data**	SET Push this for 2sec.	LED disappear. 12 91 6A

Fig. C31

for "6A".
like this
g the new
r you can

D lights up

ED
ghts up

A LED is a

mode.

ghts up

Item		Proceduring Order	Buttons to be Pushed	LED Indication
	5	Set the address of EEPROM to "6A"	ADR 6 A	address of EEPROM 02 9 16C LED lights up
	6	Do not change the data after adjustment	DATA 9 1	02 9 1.6C LED lights up
	7	Write the data	SET Push this for 2sec.	LED disappear 02 9 16C

Fig. C30

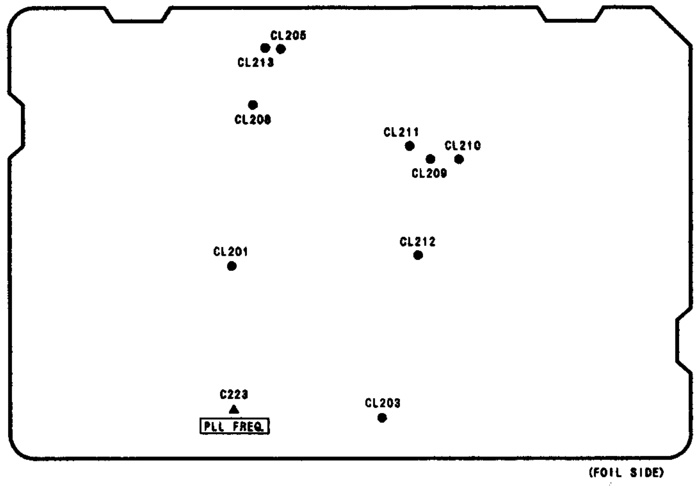
3) Direct Writing Procedure

Item		Proceduring Order	Buttons to be Pushed	LED Indication
For Example, writing the AGC adjustment data	1 2 3	**Searching the best Point.** **same as (1)**	same as (2)	same as (2)
	4	Change the command to "12"	CMD 1 2	LED lights up 12.80 00 Command for Direct writing
	5	Set the address of EEPROM to "6A"	ADR 6 A	address of EEPROM 12 00 6A LED lights up
	6	Set the data of best point "91"	DATA 9 1	12 9 1.6A LED lights up
	7	**Write the data**	SET Push this for 2sec.	LED disappear. 12 9 16A

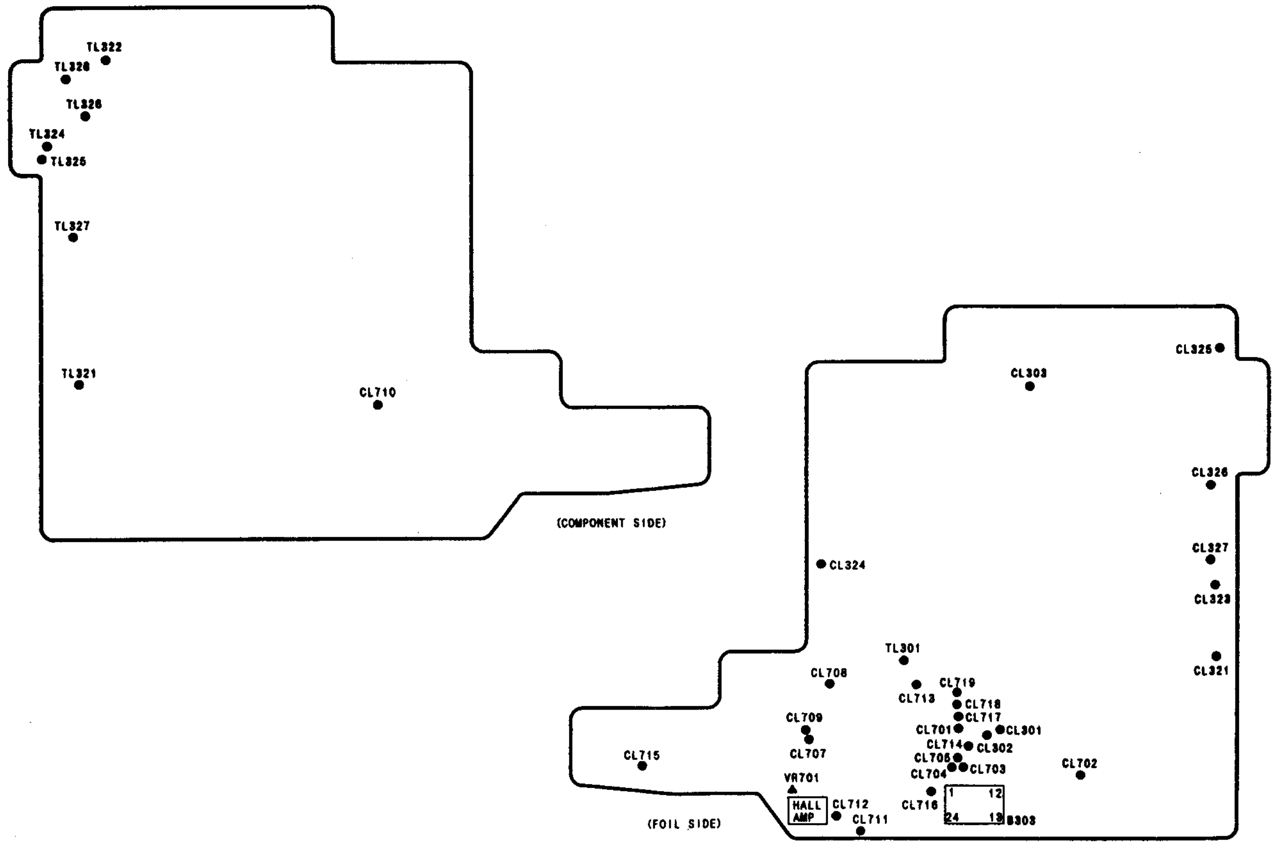
Fig. C31

LOCATION OF TEST POINTS AND CONTROLS (1)

CCD DRIVE C.B.A.

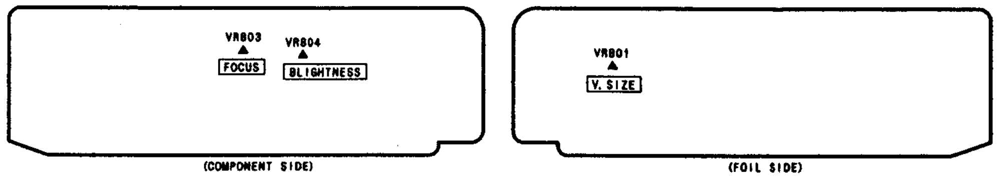

CL205
CL213
CL208
CL211
CL210
CL209
CL201
CL212
C223
PLL FREQ.
CL203
(FOIL SIDE)

PROCESS & AF C.B.A.

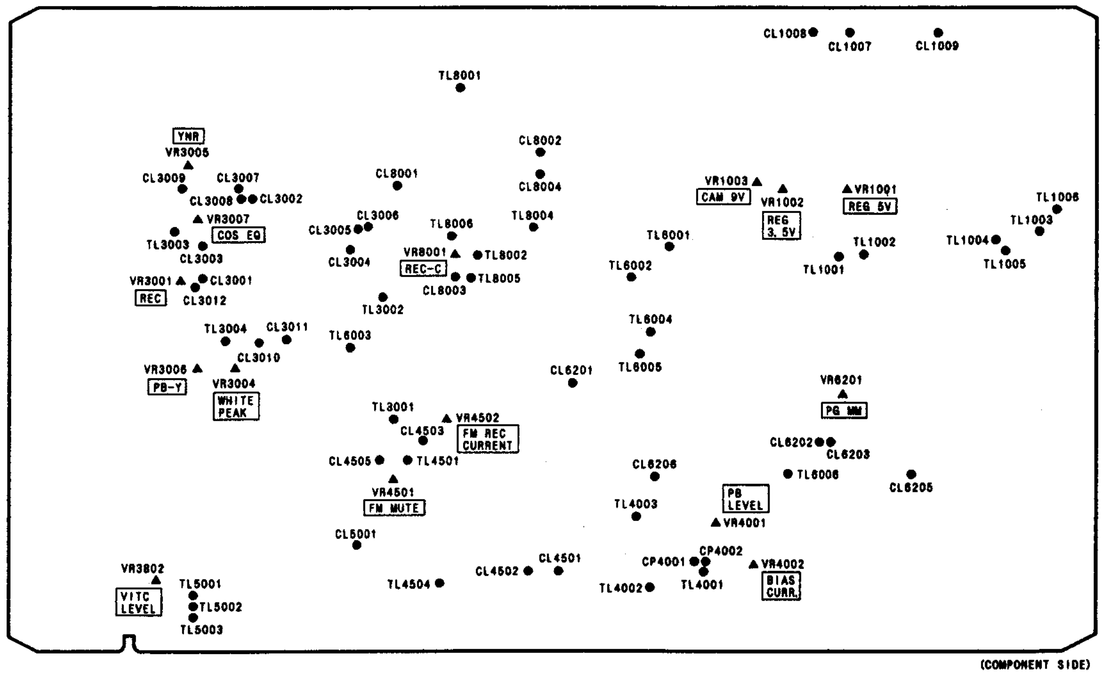

TL322
TL328
TL326
TL324
TL325
TL327
TL321
CL710
(COMPONENT SIDE)
CL325
CL303
CL326
CL324
CL327
CL323
CL321
TL301
CL708
CL713
CL719
CL718
CL717
CL709
CL701
CL301
CL714
CL302
CL707
CL706
CL703
CL715
CL704
CL702
VR701
HALL AMP
CL712
CL711
CL716
1
12
24
13
B303
(FOIL SIDE)

LOCATION OF TEST POINTS AND CONTROLS (2)

E.V.F. C.B.A.


VR803
FOCUS
VR804
BLIGHTNESS
(COMPONENT SIDE)
VR801
V. SIZE
(FOIL SIDE)

MAIN C.B.A.


CL1008
CL1007
CL1009
TL8001
YNR
VR3005
CL8002
CL8004
CL3009
CL3007
CL3008
CL3002
CL8001
VR3007
COS EQ
TL3003
CL3003
CL3005
CL3006
CL3004
TL8006
TL8004
VR8001
REC-C
TL8002
TL8005
CL8003
TL3002
VR3001
CL3001
REC
CL3012
TL3004
CL3011
CL3010
TL6003
VR3006
PB-Y
VR3004
WHITE PEAK
VR1003
CAM 9V
VR1002
REG 3. 5V
VR1001
REG 5V
TL6001
TL6002
TL1002
TL1001
TL1006
TL1003
TL1004
TL1005
TL6004
TL6005
CL6201
VR6201
PG MM
TL3001
VR4502
CL4503
FM REC CURRENT
CL4505
TL4501
VR4501
FM MUTE
CL6202
CL6203
CL6206
TL6006
CL6205
TL4003
PB LEVEL
VR4001
CL5001
VR3802
VITC LEVEL
TL5001
TL5002
TL5003
TL4504
CL4502
CL4501
CP4001
CP4002
VR4002
BIAS CURR.
TL4002
TL4001
(COMPONENT SIDE)

2-7-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

The following adjustment are for Electric Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely aligned before viewfinder adjustments are made.

1. CENTERING ADJUSTMENT

(1) Aim the camera at the registration chart.
(2) Adjust the deflection Yole centering magnets turning them so that the picture on monitor TV is centered.

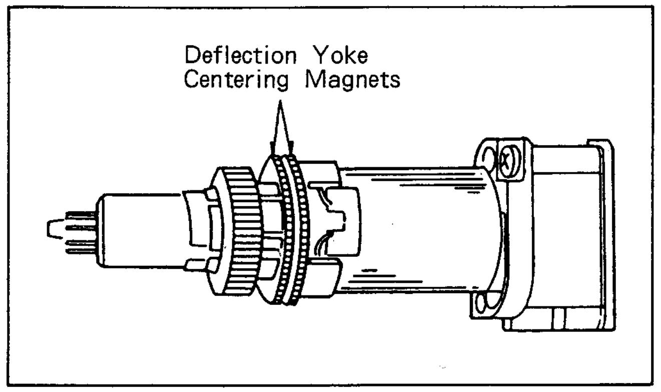

Deflection Yoke
Centering Magnets

Fig. E1

2. FOCUS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR803	NO	BALL CHART
M. EQ.		SPEC.	
VIEWFINDER		BEST RESOLUTION	

NOTE VR803: E.V.F. C.B.A.
1) Aim the connect at Ball chart.
2) Adjust the VR803 for best resolution in viewfinder.

3. V.SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR801	NO	GRAY SCALE CHART
M. EQ.		SPEC.	
VIEWFINDER		VERTICAL SIZE IS FIXED	

NOTE:
VR801 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the vertical size(VR801) so that the Vertical size is correct and the picture does not roll as shown in Fig.E2.

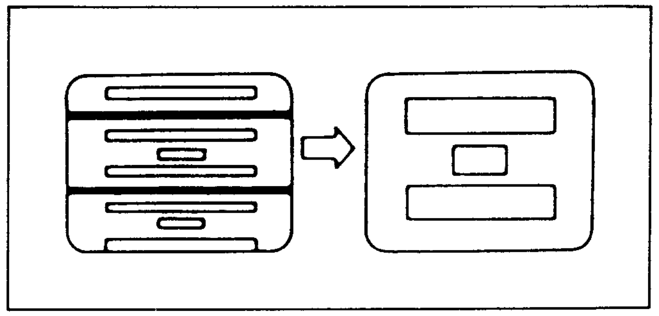


Fig. E2

4. BRIGHTNESS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR804	NO	GRAY SCALE CHART
M. EQ.		SPEC.	
VIEWFINDER		NATURAL GRADATION	

NOTE:
VR804 : E.V.F. C.B.A.

(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control(VR804) so that the black and white bars in the E.V.F. screen are the same as they are in the monitor TV screen.

2-7-3. EL
FO

TEST EQU

The follow
of the VTF

1. VTVM
DVM
Voltag
2. Dual T
Voltag
Frequer
Probe:
3. Frequer
Frequer
4. Signal
Frequer
5. Video
Frequer
6. Colour
7. Plastic
8. VHS-N
9. S-VHS
10. Patterr
11. Vectors
12. DC Po

PREPARAT

1. Remove
(Refer
2. Connec
VFK08

2-7-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

The following adjustment are for Electric Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely aligned before viewfinder adjustments are made.

1. CENTERING ADJUSTMENT

(1) Aim the camera at the registration chart.
(2) Adjust the deflection Yole centering magnets turning them so that the picture on monitor TV is centered.

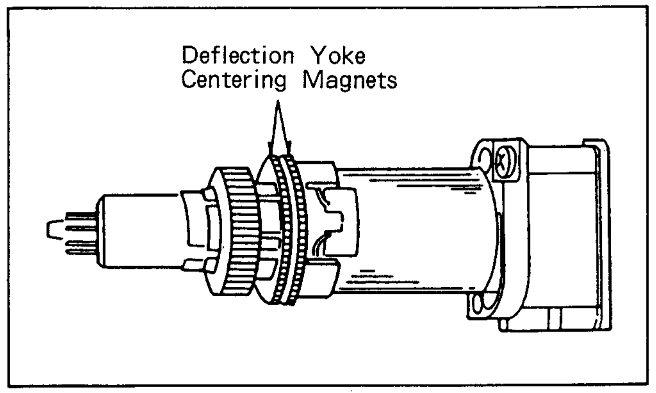

Deflection Yoke
Centering Magnets

Fig. E1

2. FOCUS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
☒	VR803	NO	BALL CHART
M. EQ.		SPEC.	
VIEWFINDER		BEST RESOLUTION	

NOTE VR803: E.V.F. C.B.A.
1) Aim the connect at Ball chart.
2) Adjust the VR803 for best resolution in viewfinder.

3. V.SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
☒	VR801	NO	GRAY SCALE CHART
M. EQ.		SPEC.	
VIEWFINDER		VERTICAL SIZE IS FIXED	

NOTE:
VR801 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the vertical size(VR801) so that the Vertical size is correct and the picture does not roll as shown in Fig.E2.

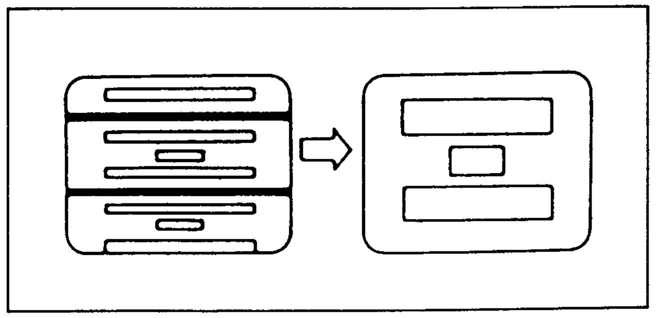


Fig. E2

4. BRIGHTNESS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
☒	VR804	NO	GRAY SCALE CHART
M. EQ.		SPEC.	
VIEWFINDER		NATURAL GRADATION	

NOTE:
VR804 : E.V.F. C.B.A.

(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control(VR804) so that the black and white bars in the E.V.F. screen are the same as they are in the monitor TV screen.

2-7-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

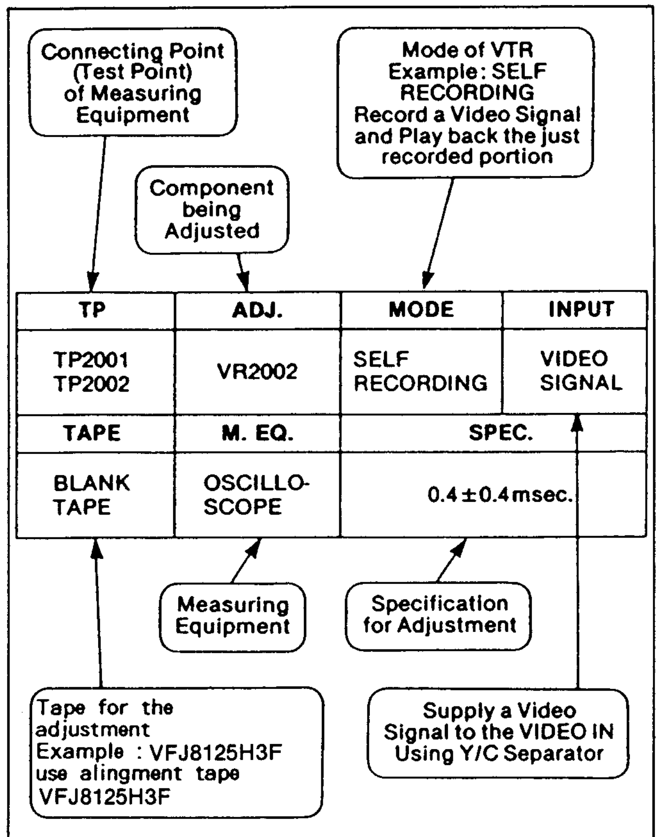
The following equipment is required for adjustment of the VTR section of VHS-Movie.

1. VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range: 0.01–50V)
2. Dual Trace Oscilloscope
   Voltage Range: 0.06–50V/div
   Frequency Range: 0–50MHz
   Probe: 10:1 or 1:1
3. Frequency counter
   Frequency Range: 0–10MHz
4. Signal Generator (Sinewave)
   Frequency Range: 0–10MHz
5. Video Sweep Generator
   Frequency Range: 0–10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. VHS-Movie. Alignment Tape (VFM8080HQFP)
9. S-VHS-Movie. Blank Tape
10. Pattern Generator
11. Vectorscope
12. DC Power Supply

PREPARATION

1. Remove the casing panels.
   (Refer to the disassembly method)
2. Connect the extension cable if necessary.
   VFK0823

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Mode of VTR Example: SELF RECORDING Record a Video Signal and Play back the just recorded portion
Component being Adjusted
TP
ADJ.
MODE
INPUT
TP2001
TP2002
VR2002
SELF RECORDING
VIDEO SIGNAL
TAPE
M. EQ.
SPEC.
BLANK TAPE
OSCILLO-SCOPE
0.4±0.4msec.
Measuring Equipment
Specification for Adjustment
Tape for the adjustment Example : VFJ8125H3F use alingment tape VFJ8125H3F
Supply a Video Signal to the VIDEO IN Using Y/C Separator

Note: If ☒ appears in any block, this means it is not used or not important.

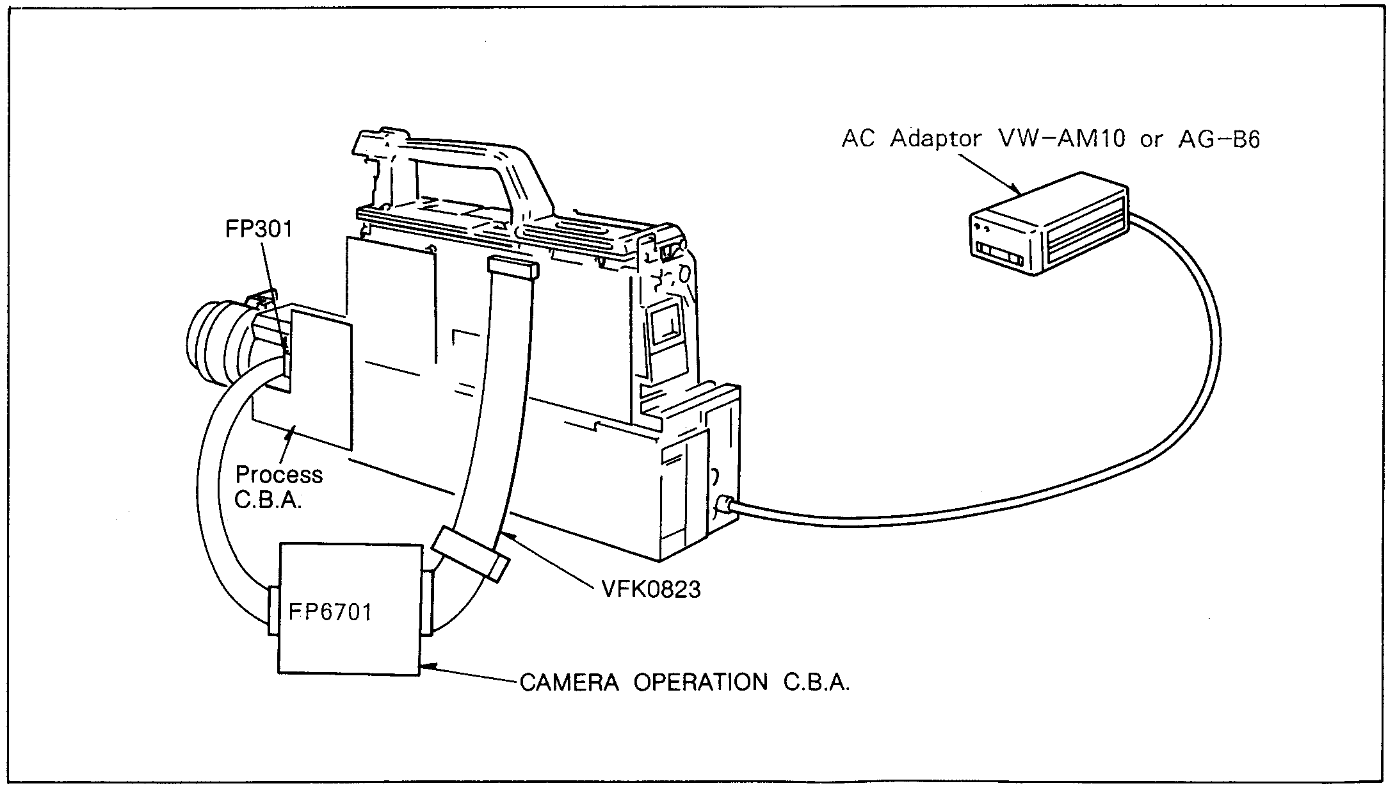

AC Adaptor VW-AM10 or AG-B6
FP301
Process C.B.A.
FP6701
VFK0823
CAMERA OPERATION C.B.A.

Fig. V1

TRIGGERING THE OSCILLOSCOPE

To trigger the Oscilloscope, the following test point is used.

H. rate : TP (video output)
V. rate : CKJ6 (Head Switch signal)
(B6001(6))

POWER SECTION

1. REG. 5V ADJUSTMENT

Purpose:
To properly calibrate the 5V voltage to 4.85 DC+−0.025V.

Symptom of Misadjustment:
All circuits in the unit will not operate properly.

TP	ADJ.	MODE	INPUT
TL1001 (HOT) TL1006 (GND)	VR1001	S-VHS CAMERA RECORDING (EIS ON)	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	D.V.M.	4.85+ −0.025V	

Note:
Sensor, process, and camera operation C.B.A. are connect to the main C.B.A.

(1) Connect the D.V.M. To TL1001(HOT) and TL1006 (GND) Adjust the VR1001 so that D.V.M. is 4.85+ −0.025V.

2. CAMERA 3.5V ADJUSTMENT

Purpose:
To properly calibrate the voltage to 3.53V DC +−0.025V.

Symptom of Misadjustment:
All circuits in N Unit will not operate properly.

TP	ADJ.	MODE	INPUT
TL1002 (HOT) TL1006 (GND)	VR1002	S-VHS CAMERA RECORDING (EIS ON)	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	D.V.M.	3.53+ −0.025V	

Note:
Sensor, process, and camera operation C.B.A. are connect to the main C.B.A.
Turn the power sw on and then set EIS system to the ON position.

(1) Connect the D.V.M. to the TL1002(HOT) and TL1006(GND) Adjust the VR1002 so that D.V.M. is 3.53+ −0.025V.

3. CAMERA 9V REGULATOR

TP	ADJ.	MODE	INPUT
TL1003 (HOT) TL1006 (GND)	VR1003	S-VHS CAMERA RECORDING (EIS ON)	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	D.V.M.	8.70+0.05V −0.05V	

Note:
Digital Zoom must be set to the ON position.

(1) Connect the D.V.M. To TL1003 (HOT) and T L1006 (GND) Adjust the VR1003 so that D.V.M. i s 8.70+−0.05V.

SERVO SECTION

4. PG SHIFTER ADJUSTMENT

Purpose:
Determine the Head Switching point during play−back.

Symptom of Misadjustment:
May cause Head Switching Noise and/or Vertical jitter in the picture.

TP	ADJ.	MODE	INPUT
B6001 ⑥ (CKJ6) VIDEO OUT	VR6201	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFM8080HQFP PORTION 2	OSCILLO-SCOPE	6.5H±0.5H	

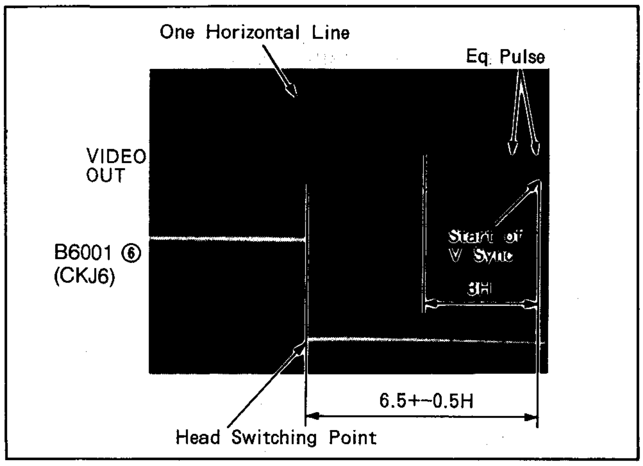


Fig. V2

LUMINANCE & CHROMINANCE SECTION

5. S–VHS MODULATOR LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
CL3010	VR3004	S-VHS STOP	COLOR BAR B6001 ⑩ (CKJ ⑩)
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	0.34+−0.01Vp-p	

1. Connect the jumper wire between TEST MODE PIN 7 and PIN 11.
2. Supply Colour Bar signal to TEST MODE PIN 10 through 100uF capacitor.
3. Connect the oscilloscope to CL3010.
4. Adjust the VR3004 so that signal level is 0.34+–0.01Vp–p.

6. RECORDING CURRENT ADJUSTMENT REC CHROMA LEVEL ADJUSTMENT

Purpose:
Set the optimum Record Chroma Level.

Symptom of Misadjustment:
If the Record Chroma Level is too high, Beats may be seen in the picture. If the Level is too low, Picture will be Black and White.

TP	ADJ.	MODE	INPUT
TL5002(HOT) TL5001(GND)	VR8001	VHS REC	DARK PICTURE
TAPE	**M. EQ.**	**SPEC.**	
VHS BLANK TAPE	OSCILLO-SCOPE	32+−2mVp-p	

Note 1:
Cover the Lens with black cap.

Note 2:
Minimize the luminance recording current by turning VR3001 before this adjustment.

1. Connect the oscilloscope to TL5002(HOT) and TL5001(GND).
2. Make recording with SP mode.
3. Eliminate luminance signal by turning off.
4. Adjust the VR8001 so that chroma level is 32+−2mVp-p.

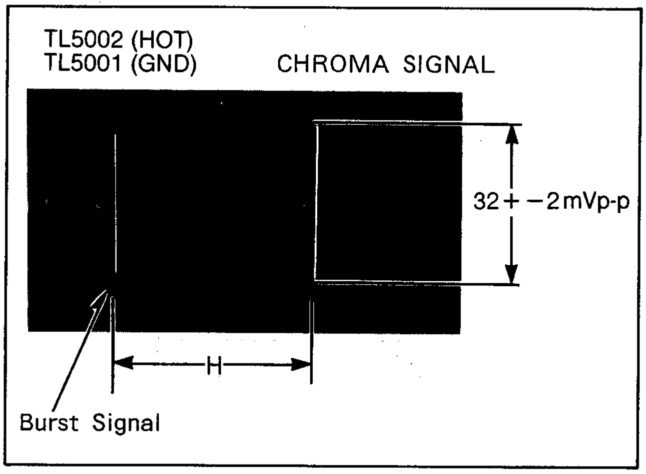


Fig. V3

7. LUMINANCE RECORDING CURRENT ADJUSTMENT

Purpose:
Set the optimum Recording Luminance Level.

Symptom of Misadjustment:
If the Record Luminance Level is too high, video may overload.
If the Level is too low, the S/N Ratio deteriorates.

TP	ADJ.	MODE	INPUT
TL5002(HOT) TL5001(GND)	VR3001	VHS REC	DARK PICTURE
TAPE	**M. EQ.**	**SPEC.**	
VHS BLANK TAPE	OSCILLO-SCOPE	110+–5mVp–p	

Note:
Cover the Lens with black cap.

1. Connect the oscilloscope to TL5002 (HOT) and TL5001 (GND).
2. Make recording with SP mode.
3. Adjust the VR3001 so that luminance level is 110+–5mVp–p.

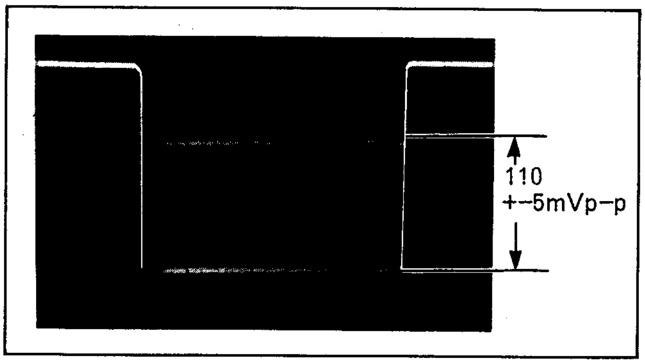


Fig. V4

8. YNR ADJUSTMENT

Purpose:
Improve the overall S/N Ratio especially in the Low Frequency component.

Symptom of Misadjustment:
The S/N Ratio is low.

TP	ADJ.	MODE	INPUT
TL3004	VR3005	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFM8080HQFP PORTION 2	OSCILLO-SCOPE	SIGNAL IS MINIMIZED (LESS THAN 50mV)	

1. Play Back the Alignment tape.
2. Connect the Video output to oscilloscope.
3. Adjust VR3005 so that signal is minimized.

9. S-VHS VIDEO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3006	S−VHS SELF RECORDING	COLOR BAR B6001 ⑩ (CKJ ⑩)
TAPE	**M. EQ.**	**SPEC.**	
S−VHS BLACK TAPE	OSCILLO−SCOPE	A: 1.0+−0.1Vp−p	

1. Terminate the Video out by 75 ohm.
2. Connect the jumper wire between Test Mode Pin 14 and Pin 16, 7 and 11.
3. Supply Colour Bar signal to Test Mode Pin 10.
4. Record it for 10 min with S−VHS−Movie.
5. Connect the oscilloscope to Video out.
6. Playback the recorded signal.
7. Adjust VR3007 untill signal level is A=1.0+−0.1Vp−p.

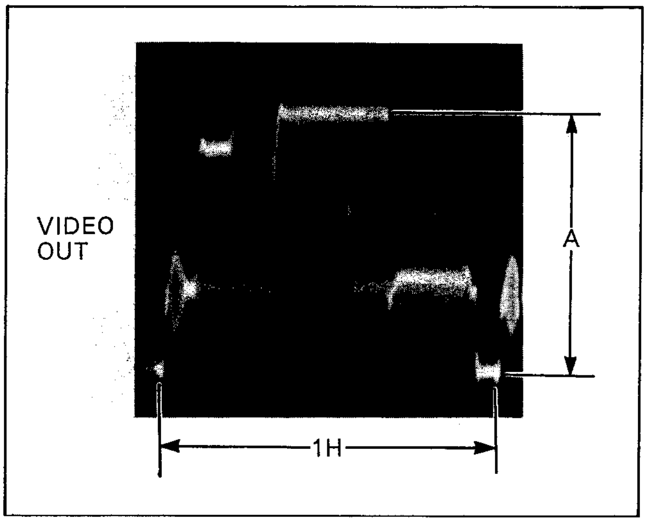
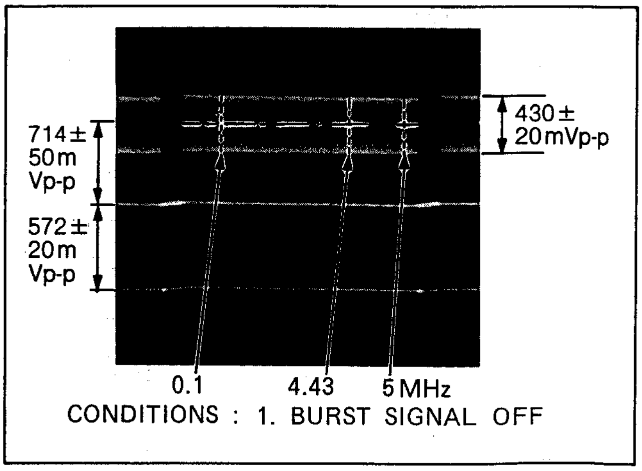


Fig. V5

10. COS EQ ADJUSTMENT

TP	ADJ.	MODE	INPUT
S-VHS LUMI OUT	VR3007	S-VHS SELF RECORDING/ PB	VIDEO SWEEP SIGNAL B6001 ⑩ (CKJ ⑩)
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	A= −4±1dB (62.5%)	

1. Set the sweep generator output as shown below.



CONDITIONS : 1. BURST SIGNAL OFF

Fig. V6

2. Connect a jumper between B6001(7)(CKJ(7)) B6001(11)(CKJ(11)).
3. Supply sweep signal to B6001 (10) (CKJ (10)) through 100uF capacitor.
4. Record the signal for a about ten minutes.
5. Playback the recorded signal.
6. Adjust VR3007 so that level at 4MHz is within spec. as shown in Fig.V7.

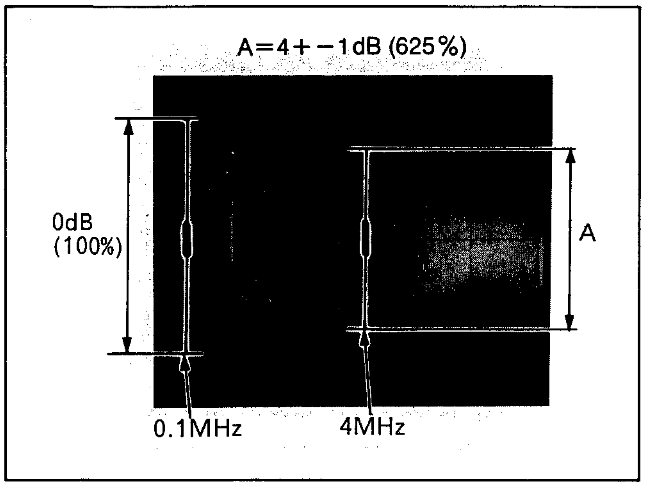


Fig. V7

AUDIO SECTION

11. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL4001 (HOT) TL4002 (GND)	VR4002	REC	disconnect P4001
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	oscilloscope (V.T.V.M.)	8.5±0.3mVp-p (3±0.1mVrms)	

Note
Connector (P4001) must be disconnected.
Set the normal audio mode.

1. Connect the oscilloscope to TL4001 (HOT) and TL4002 (GND).
2. Make recording with SP mode.
3. Adjust VR4002 so taht audio bias current is 8.5+−0.3mVp−p.

12. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
LINE OUT	VR4001	VHS REC/PB	1kHz Audio 8.9±0.5mVp-p (−50dBV ±0.5dB) CKR1 (P4001 ③) IN CKR2 (P4001 ②) GND
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR/ OSCILLO-SCOPE (V.T.V.M)	1.1+−0.1Vp−p (−8+−0.5dB)	

Note:
Audio bias current adjustment must be completed before the adjustment.

1. Set the normal audio mode.
2. Supply the audio signal (1kHz/−50dBV+−0.5dB sine−wave) to audio circuit through the test point. (CKR1, CKR2)
3. Audio VR4001 so that the level is PB Level 1.1+−0.1Vp−p. (−8dB+−0.5dB)

Hi-Fi AUDIO SECTION

13. Hi−Fi AUDIO RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL5003 (HOT) TL5001 (GND)	VR4502	S-VHS RECORDING	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	220+−5mVp-p	

1. Connector (P4001) must be disconnected.
2. Connect the OSCILLOSCOPE to TL5003(HOT) and TL5001(GND).
3. Adjust VR4502 so that the Audio recording current is 220+−5mVp−p as shown below.

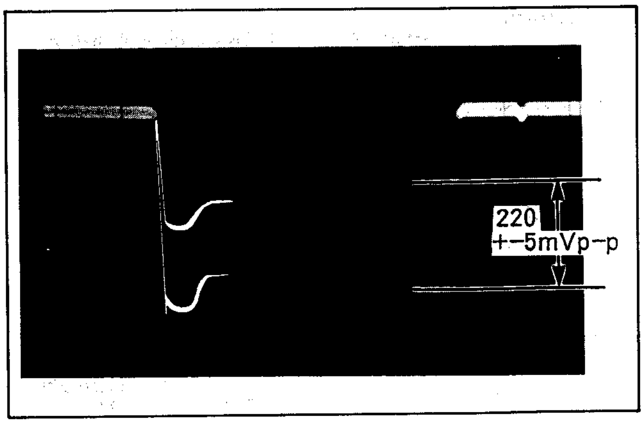


Fig. V8

14. AUDIO MUTING ADJUSTMENT

TP	ADJ.	MODE	INPUT
B5001-3	VR4501	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFM8080HQFP PORTION 2	OSCILLO-SCOPE		

Note:

Tape Interchangeability Adjustment must be completed before this adjustment.

1. Playback the Alignment tape.
2. Push the tracking Button untill signal level at B5001–3 becomes maximum.
3. Adjust VR4501 to anti–clockwise untill sound mode change to normal from Hi–Fi mode, and return it to clockwise untill sound mode change to Hi–Fi from normal mode.

VITC SECTION

15. VITC SIGNAL LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT 75 ohm TERMINATED	VR3802	VHS REC PAUSE	GRAY SCALE CHART
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	V/S 1.8+–0.07 (540+–20mVp-p)	

Note:

Cover the Lens with black cap.

1. Set the unit to VHS–Movie. Mode and set to Rec Pause mode.
2. Adjust the VR3802 so that ratio of V and S is 1.8+–0.07 as shown below.

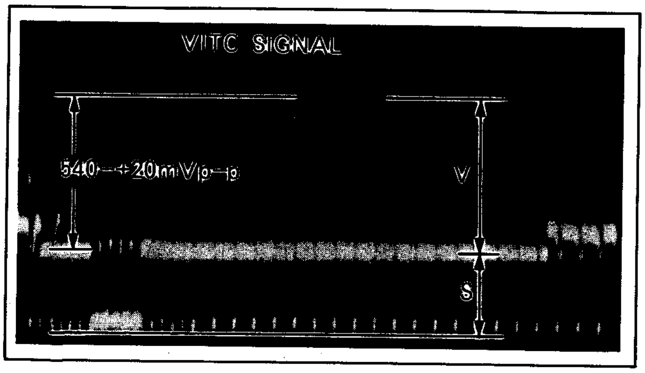


Fig. V9

SECTION 3

BLOCK DIAGRAMS

CONTENTS

ABBREVIATION ··3-1
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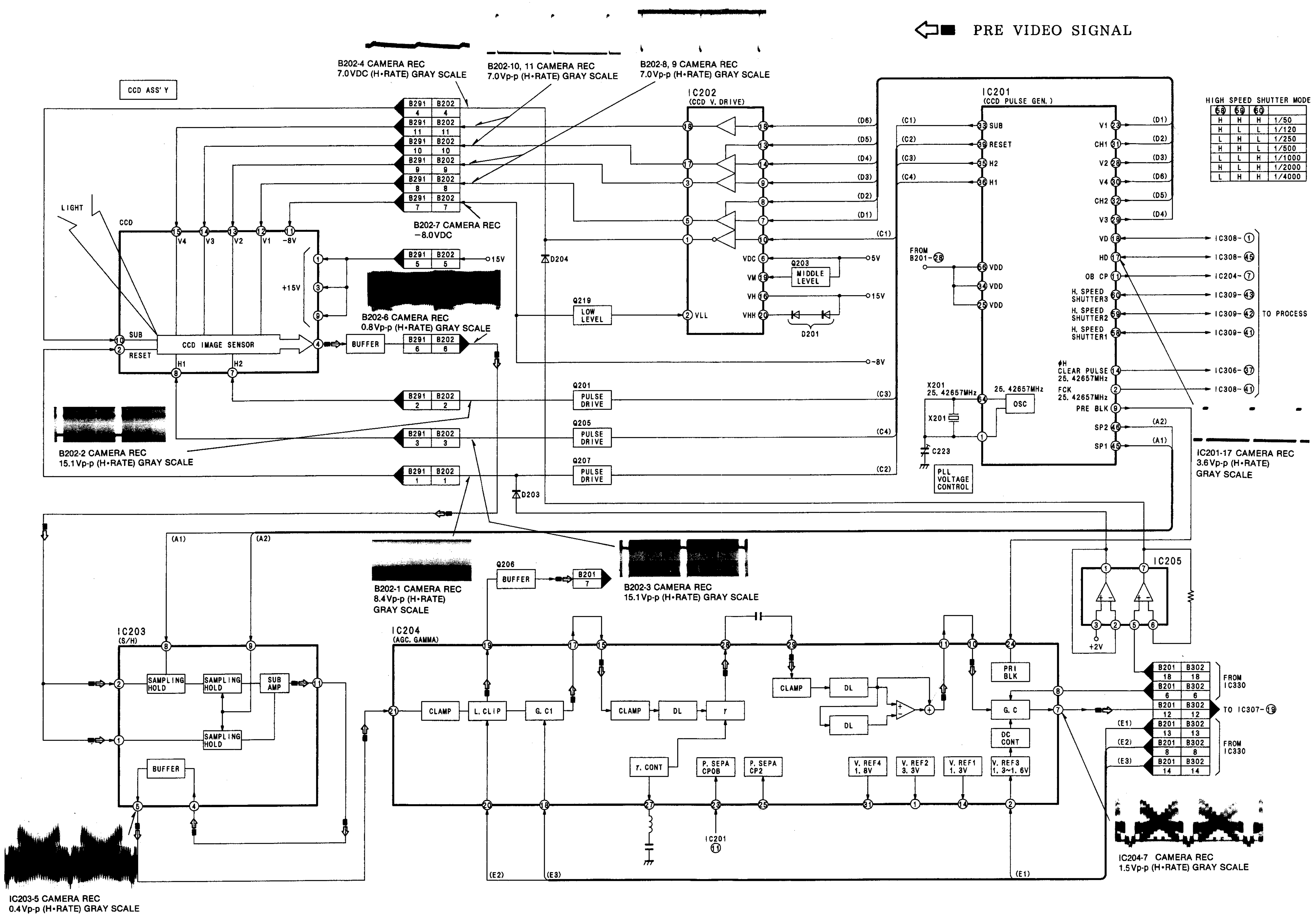
3-2. AUTO FOCUS ··3-4
3-3. PROCESS ··3-7
3-4. POWER ··3-12
3-5. SYSTEM CONTROL & SERVO ··3-14
3-6. HI-FI AUDIO ··3-17
3-7. LUMINANCE/CHROMINANCE & HEAD AMP ··3-22

ABBREVIATION

INITIAL/LOGO		ABBREVIATION
A	A·DUB	AUDIO DUBBING
	A·ORP	AUDIO OVERLAP PULSE
	A·TR	AUTO TRACKING
	AD REC	AUDIO DELAYD REC
	AF CS	AF CHIP SELECT
	AFADE	AUDIO FADE
	ALC CONT	ALC CONTROL
	ALC MAIN	ALC DRIVE
	ART·V	ARTIFICIAL VERTICAL SYNC SIGNAL
B	BF	BURST FLAG PULSE
	BLK	BLANKING
	BM	BALANCED MODULATOR
	B-Y KB	B-Y CARRIER BALANCE
	BUF or BF	BUFFER
C	CAPVM	CAPSTAN MOTOR CURRENT
	CCW	COUNTER CLOCK WISE
	CDS	CCD OUTPUT SIGINAL
	CFM 1 ~4	CHROMA FIELD MEMORY
	CGC	CHROMA GAIN CONTROL
	CHR MIX	CHARACTER MIX
	CLK or CL	CLOCK
	CMEM	CHROMA MEMORY SIGNAL
	CMO	CHROMA MEMORY OUTPUT
	CP	CLAMP PULSE
	CPOB	OB CLAMP PULSE
	CS	CHIP SELECT
	CW	CLOCK WISE
	CYLVM	CYLINDER MOTOR CURRENT
D	DL	DELAY LINE
	DS1	DOUBLE SAMPLING PULSE 1
	DS2	DOUBLE SAMPLING PULSE 2
	DSP	DIGITAL SIGNAL PROCESS
E	ECM	ELECTRIC CONDENSER MIC
	EE CS	EEPROM CHIP SELECT
	EECS	EEPROM CHIP SELECT
	ENV·DET	ENVELOPE LEVEL DETECT
	EZOOM	ELECTRIC ZOOM
F	F·ENC	FOCUS ENCODER
	FM MUTE	FM AUDIO MUTE
	FMD REC	FM AUDIO DELAY REC
	FMOEM	FIELD MEMORY ENABLE
	FNO	F VALUE
H	H·CLR	HIGH CLEAR
	HBR·SET	HIGH BRIGHT SET
	HLT	HIGHT BRIGHT SIGNAL
	HD	HORIZONTAL DRIVE PULSE
I	IOU	R-Y ANALOGUE SIGNAL OUTPUT
	IOV	B-Y ANALOGUE SIGNAL OUTPUT
	IRQ	INTERRUPT REQUEST
L	LD	LOAD PULSE
	LED CONT	LED CONTROL
	LI BATT	LITHIUM BATTERY
	LSB	LEAST SIGINIFICANT BIT
M	MD	MODULATOR
	MF·F	MANUAL FOCUS FAR
	MF·N	MANUAL FOCUS NEAR
	MSB	MOST SIGNIFICANT BIT
N	N·DE	NON LINER DE-EMPHASIS
	N·LE	NON LINER EMPHSIS

INITIAL/LOGO		ABBREVIATION
N	NRD	NON REC DATA
	NRE	READ ENABLE INPUT(LOW ACTIVE)
	NWE	WRITE ENABLE INPUT(LOW ACTIVE)
O	OE	OUTPUT ENABLE
	OP2	OPERATINAL AMP OUTPUT 2
	OSD	ON SCREEN DISPLAY
P	PCBM(B-Y)	B-Y CARRIER BALANCE
	PCBM(R-Y)	R-Y CARRIER BALANCE
	PEDE CONT	PEDESTAL CONTROL
	POR	POWER ON RESET
	PREBLK	PRE BLANKING
	PWM	PULSE WIDTH MODULATOR
	R/B	READY/BUSY
	R-Y KB	R-Y CARRIER BALANCE
	RAD	READ ADDRESS DATA
	RAE	READ ADDRESS ENABLE
	RE	READ ENANLE
	RERASE	ROTARY ERASE HEAD
	RSTR	RESET READ
	RSTW	RESET WRITE
S	SBD	SERIAL DATA
	SBO	SERIAL OUTPUT
T	TL	TORQUE LIMIT
	TRFIX	TRACKING FIX
U	UVSEL	U/V SELCT
V	VCO	VOLTAGE CONTROL OSCILLTOR
	VCTL	Φ VOLTAGE CHARGE CONTROL
	VD	VERTICAL DRIVE PULSE
	VDREC	VIDEO DELAYED REC
	VMD	VELOCITY MODE DATA
	VORP	VIDEO OVERLAP
	VRO	REFEREMCE VOLTAGE OUTPUT
W	WADE	WRITE ADDRESS ENABLE
	WE	WRITE ENABLE
Y	YNC	NOISE CANCELER (LUMINANCE)
	YNR	NOISE REDUCTION(LUMINANCE)
Z	Z·ENC	ZOOM ENCODER

3-1. CCD DRIVE BLOCK DIAGRAM


PRE VIDEO SIGNAL
CCD ASS'Y
LIGHT
CCD
CCD IMAGE SENSOR
SUB
RESET
V4
V3
V2
V1
-8V
H1
H2
+15V
15V
BUFFER
B291
B202
D204
D203
Q219
LOW LEVEL
Q201
PULSE DRIVE
Q205
PULSE DRIVE
Q207
PULSE DRIVE
IC202
(CCD V. DRIVE)
VLL
VDC
VM
VH
VHH
Q203
MIDDLE LEVEL
D201
5V
15V
-8V
IC201
(CCD PULSE GEN.)
SUB
RESET
H2
H1
VDD
FROM B201-㉘
X201 25.42657MHz
25.42657MHz
OSC
C223
PLL VOLTAGE CONTROL
V1
CH1
V2
V4
CH2
V3
VD
HD
OB CP
H. SPEED SHUTTER3
H. SPEED SHUTTER2
H. SPEED SHUTTER1
φH CLEAR PULSE 25.42657MHz
FCK 25.42657MHz
PRE BLK
SP2
SP1
IC308-①
IC308-㊺
IC204-⑦
IC309-㊸
IC309-㊷
IC309-㊶
IC306-㊲
IC308-㊶
TO PROCESS
HIGH SPEED SHUTTER MODE
IC205
+2V
Q206
BUFFER
B201 7
IC203
(S/H)
SAMPLING HOLD
SUB AMP
BUFFER
IC204
(AGC. GAMMA)
CLAMP
L. CLIP
G. C1
CLAMP
DL
γ
γ. CONT
P. SEPA CPOB
P. SEPA CP2
CLAMP
DL
V. REF4 1.8V
V. REF2 3.3V
V. REF1 1.3V
V. REF3 1.3~1.6V
PRI BLK
G. C
DC CONT
IC201 ⑪
B201 B302
FROM IC330
TO IC307-⑲
FROM IC330
(A1) (A2) (C1) (C2) (C3) (C4) (D1) (D2) (D3) (D4) (D5) (D6) (E1) (E2) (E3)

㊿58	59	60	
H	H	H	1/50
H	L	L	1/120
L	H	L	1/250
H	H	L	1/500
L	L	H	1/1000
H	L	H	1/2000
L	H	H	1/4000

B202-4 CAMERA REC 7.0VDC (H•RATE) GRAY SCALE

B202-10, 11 CAMERA REC 7.0Vp-p (H•RATE) GRAY SCALE

B202-8, 9 CAMERA REC 7.0Vp-p (H•RATE) GRAY SCALE

B202-7 CAMERA REC −8.0VDC

B202-6 CAMERA REC 0.8Vp-p (H•RATE) GRAY SCALE

B202-2 CAMERA REC 15.1Vp-p (H•RATE) GRAY SCALE

IC201-17 CAMERA REC 3.6Vp-p (H•RATE) GRAY SCALE

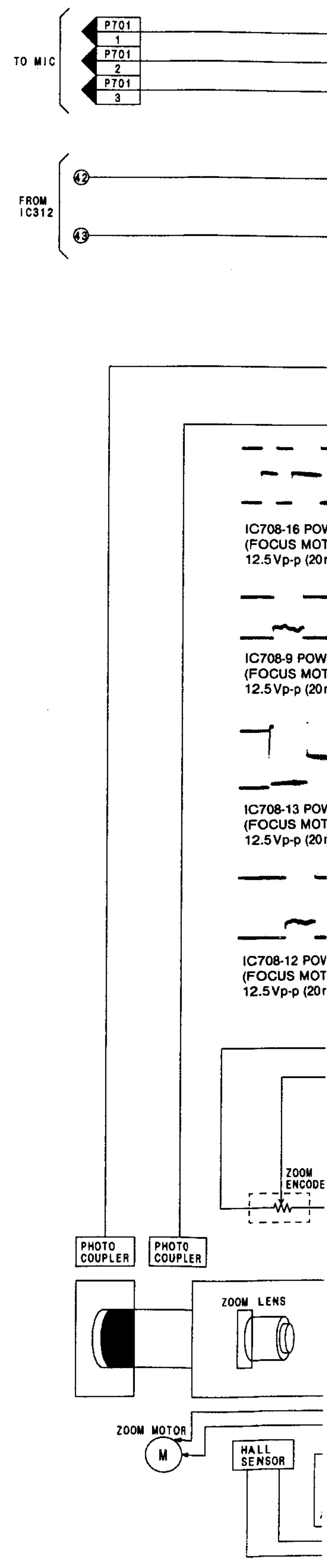
B202-1 CAMERA REC 8.4Vp-p (H•RATE) GRAY SCALE

B202-3 CAMERA REC 15.1Vp-p (H•RATE) GRAY SCALE

IC204-7 CAMERA REC 1.5Vp-p (H•RATE) GRAY SCALE

IC203-5 CAMERA REC 0.4Vp-p (H•RATE) GRAY SCALE

3-2. AUTO FOCU


TO MIC
P701 1
P701 2
P701 3
FROM IC312
㊷
㊸
PHOTO COUPLER
PHOTO COUPLER
ZOOM LENS
ZOOM ENCODE
ZOOM MOTOR
M
HALL SENSOR

IC708-16 POW (FOCUS MOT 12.5Vp-p (20

IC708-9 POW (FOCUS MOT 12.5Vp-p (20

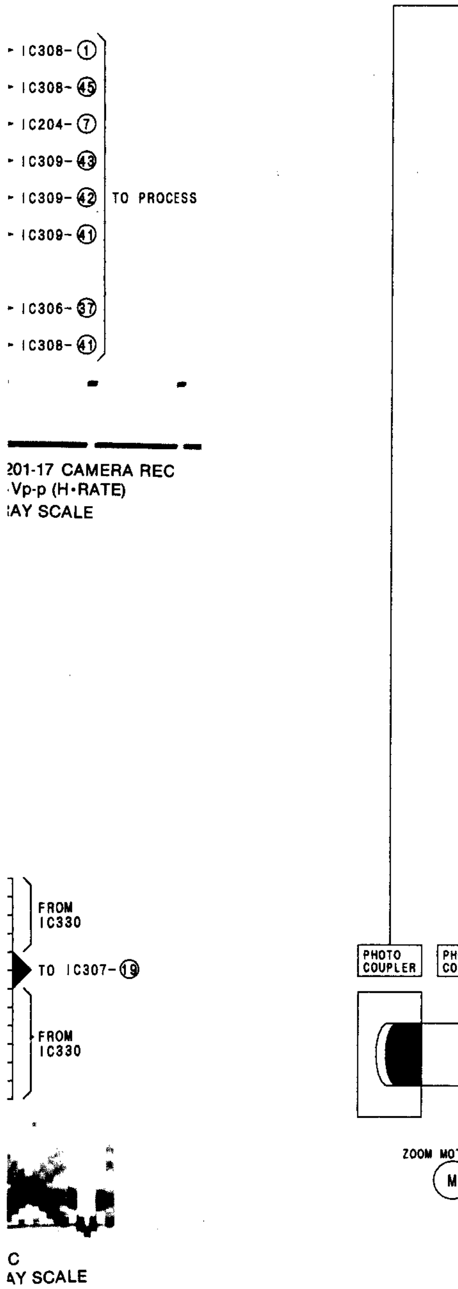
IC708-13 POW (FOCUS MOT 12.5Vp-p (20

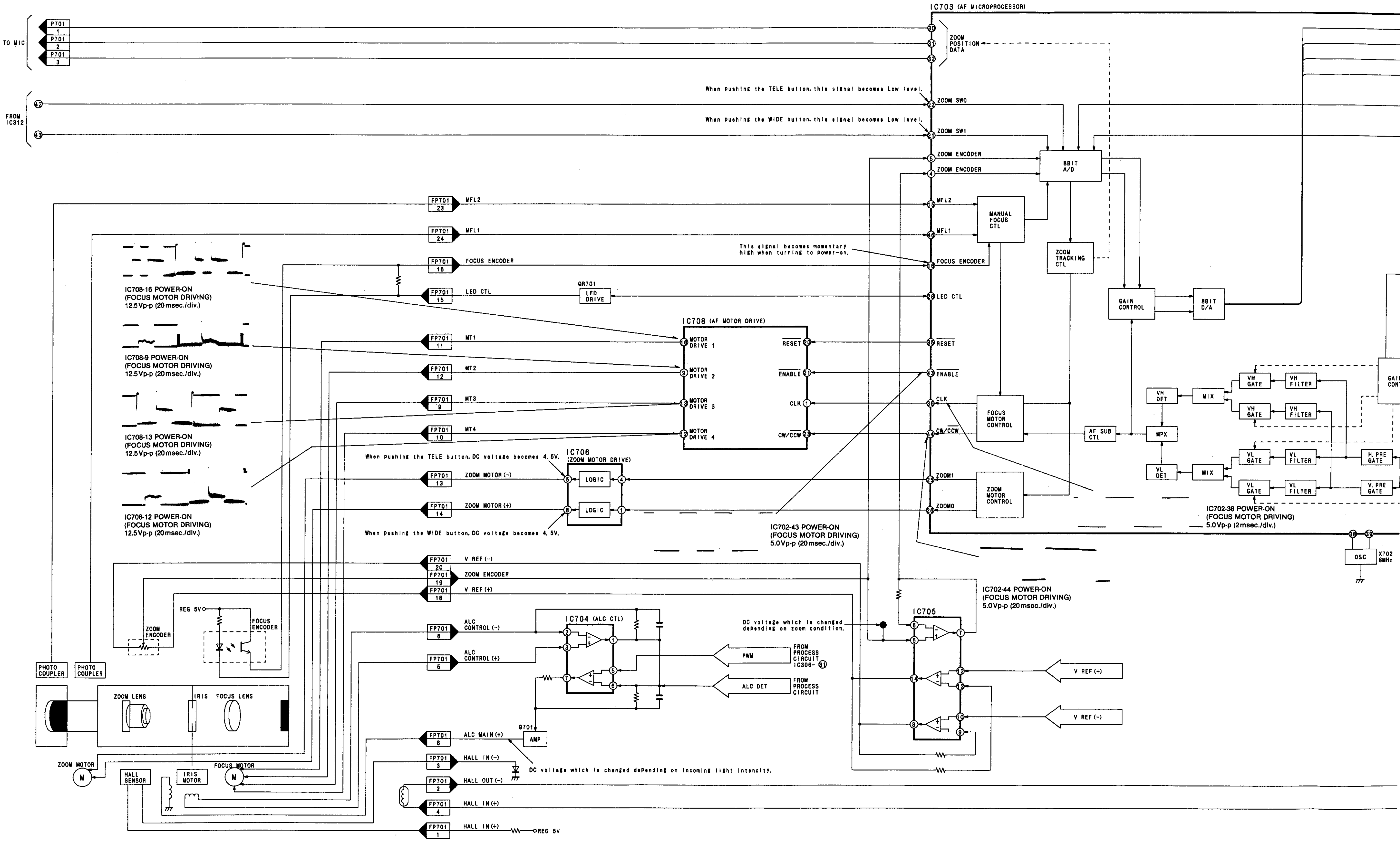
IC708-12 POW (FOCUS MOT 12.5Vp-p (20

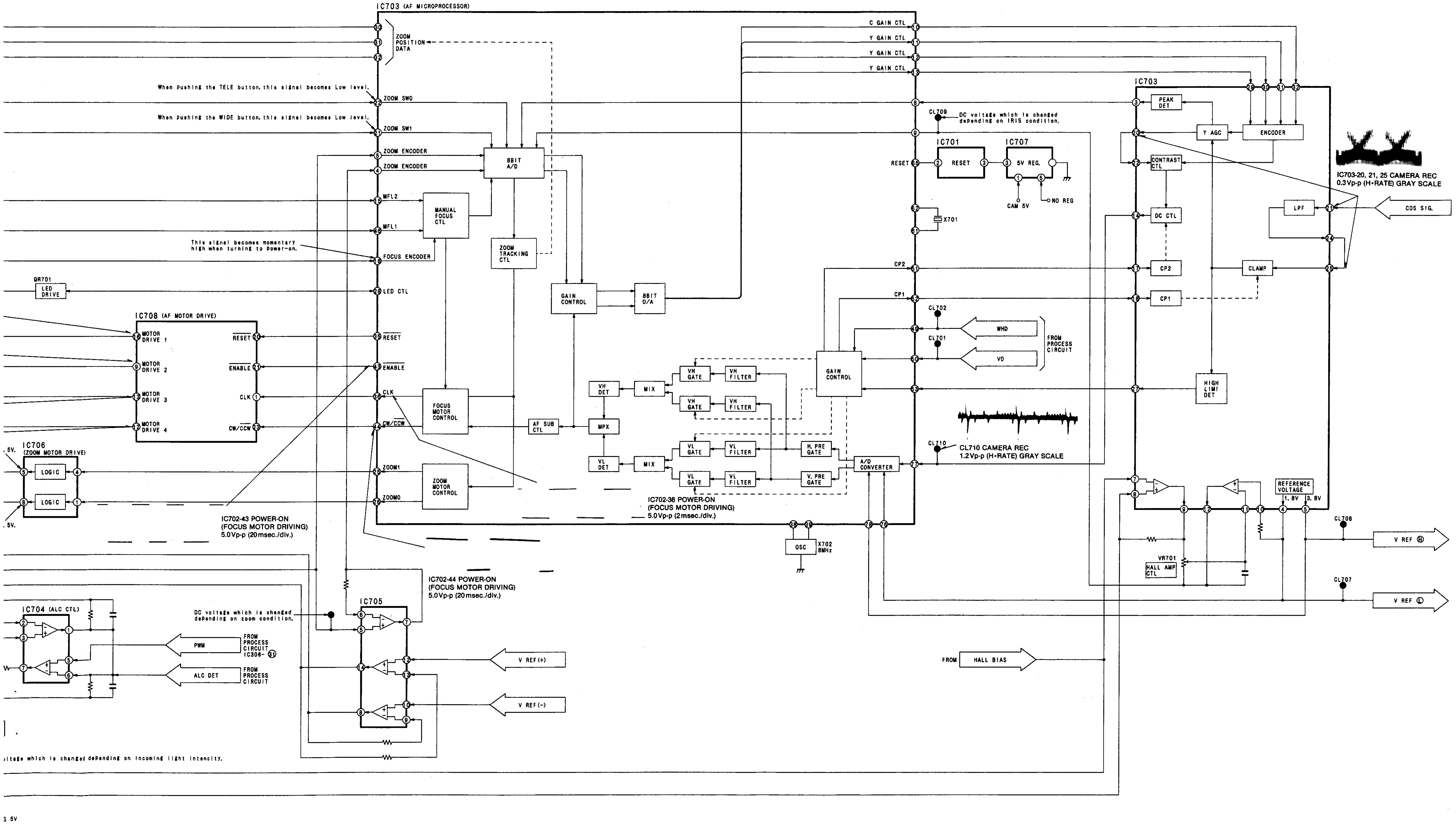
3-2. AUTO FOCUS BLOCK DIAGRAM

IGH SPEED SHUTTER MODE

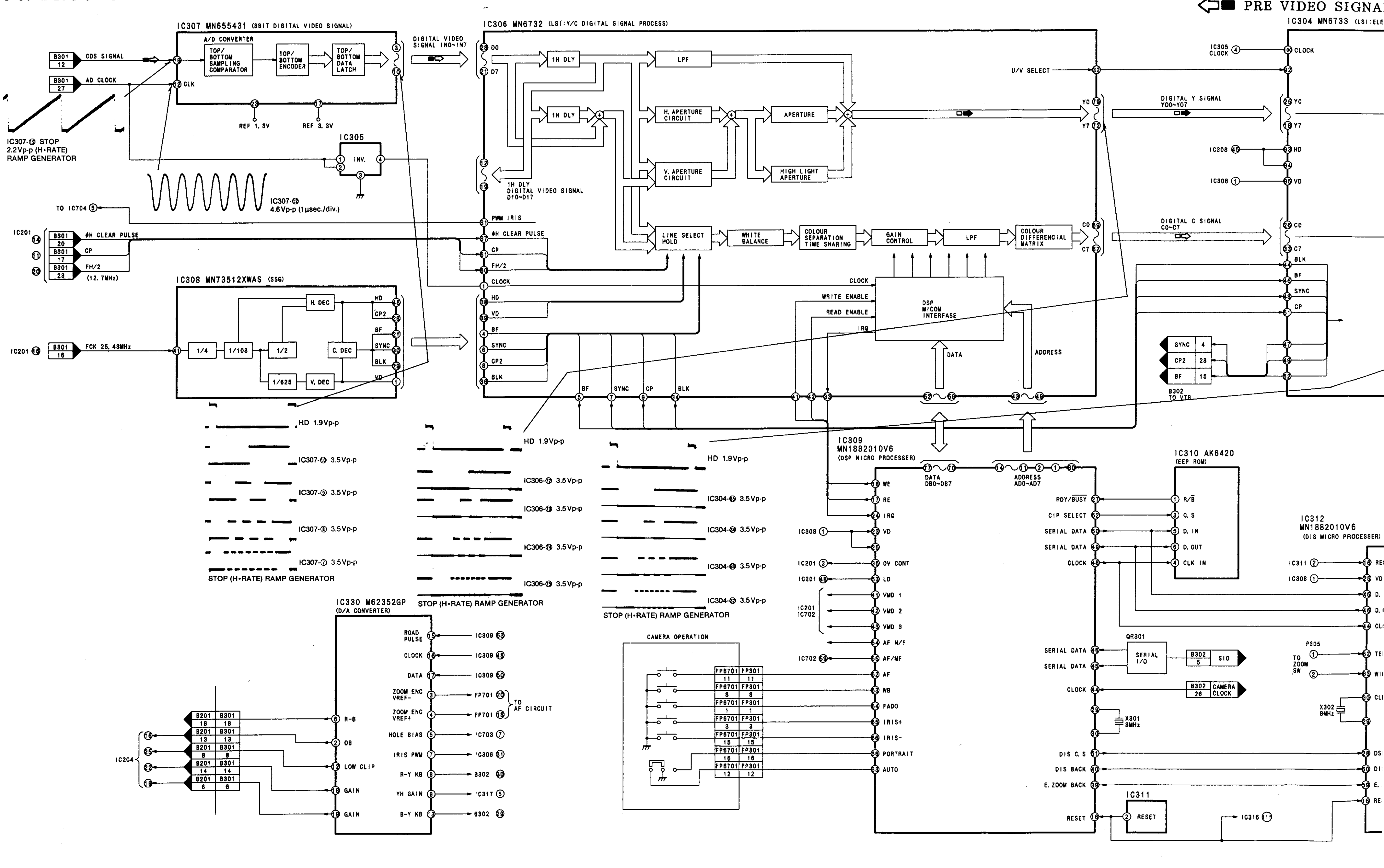
(58)	(59)	(60)	
H	H	H	1/50
H	L	L	1/120
L	H	L	1/250
H	H	L	1/500
L	L	H	1/1000
H	L	H	1/2000
L	H	H	1/4000


IC308-①
IC308-㊺
IC204-⑦
IC309-㊸
IC309-㊷
TO PROCESS
IC309-㊶
IC306-㊲
IC308-㊶
201-17 CAMERA REC
Vp-p (H•RATE)
AY SCALE
FROM IC330
TO IC307-⑲
FROM IC330
C
AY SCALE


TO MIC
P701 1
P701 2
P701 3
FROM IC312
㊷
㊸
IC703 (AF MICROPROCESSOR)
30
31
32
ZOOM POSITION DATA
When pushing the TELE button, this signal becomes Low level.
22 ZOOM SW0
When pushing the WIDE button, this signal becomes Low level.
21 ZOOM SW1
5 ZOOM ENCODER
4 ZOOM ENCODER
8BIT A/D
FP701 23 MFL2
15 MFL2
MANUAL FOCUS CTL
FP701 24 MFL1
46 MFL1
ZOOM TRACKING CTL
This signal becomes momentary high when turning to power-on.
FP701 16 FOCUS ENCODER
16 FOCUS ENCODER
FP701 15 LED CTL
QR701 LED DRIVE
28 LED CTL
GAIN CONTROL
8BIT D/A
IC708-16 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)
IC708 (AF MOTOR DRIVE)
FP701 11 MT1
16 MOTOR DRIVE 1
RESET 20
35 RESET
IC708-9 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)
FP701 12 MT2
9 MOTOR DRIVE 2
ENABLE 21
43 ENABLE
FP701 9 MT3
13 MOTOR DRIVE 3
CLK 1
36 CLK
FOCUS MOTOR CONTROL
IC708-13 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)
FP701 10 MT4
12 MOTOR DRIVE 4
CW/CCW 23
44 CW/CCW
AF SUB CTL
MPX
VH DET
MIX
VH GATE
VH FILTER
VH GATE
VH FILTER
GAIN CONT
VL DET
MIX
VL GATE
VL FILTER
H. PRE GATE
VL GATE
VL FILTER
V. PRE GATE
When pushing the TELE button, DC voltage becomes 4.5V.
IC706 (ZOOM MOTOR DRIVE)
FP701 13 ZOOM MOTOR (−)
5 LOGIC 4
25 ZOOM1
ZOOM MOTOR CONTROL
FP701 14 ZOOM MOTOR (+)
8 LOGIC 1
26 ZOOM0
IC708-12 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)
When pushing the WIDE button, DC voltage becomes 4.5V.
IC702-43 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)
IC702-36 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (2msec./div.)
38
39
OSC
X702 8MHz
FP701 20 V REF (−)
FP701 19 ZOOM ENCODER
FP701 18 V REF (+)
IC702-44 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)
REG 5V
ZOOM ENCODER
FOCUS ENCODER
IC704 (ALC CTL)
FP701 6 ALC CONTROL (−)
FP701 5 ALC CONTROL (+)
DC voltage which is changed depending on zoom condition.
IC705
PWM
FROM PROCESS CIRCUIT IC306-㉛
ALC DET
FROM PROCESS CIRCUIT
V REF (+)
V REF (−)
PHOTO COUPLER
PHOTO COUPLER
ZOOM LENS
IRIS
FOCUS LENS
Q701
AMP
FP701 8 ALC MAIN (+)
FP701 3 HALL IN (−)
DC voltage which is changed depending on incoming light intencity.
FP701 2 HALL OUT (−)
FP701 4 HALL IN (+)
FP701 1 HALL IN (+)
REG 5V
ZOOM MOTOR
M
HALL SENSOR
IRIS MOTOR
FOCUS MOTOR
M

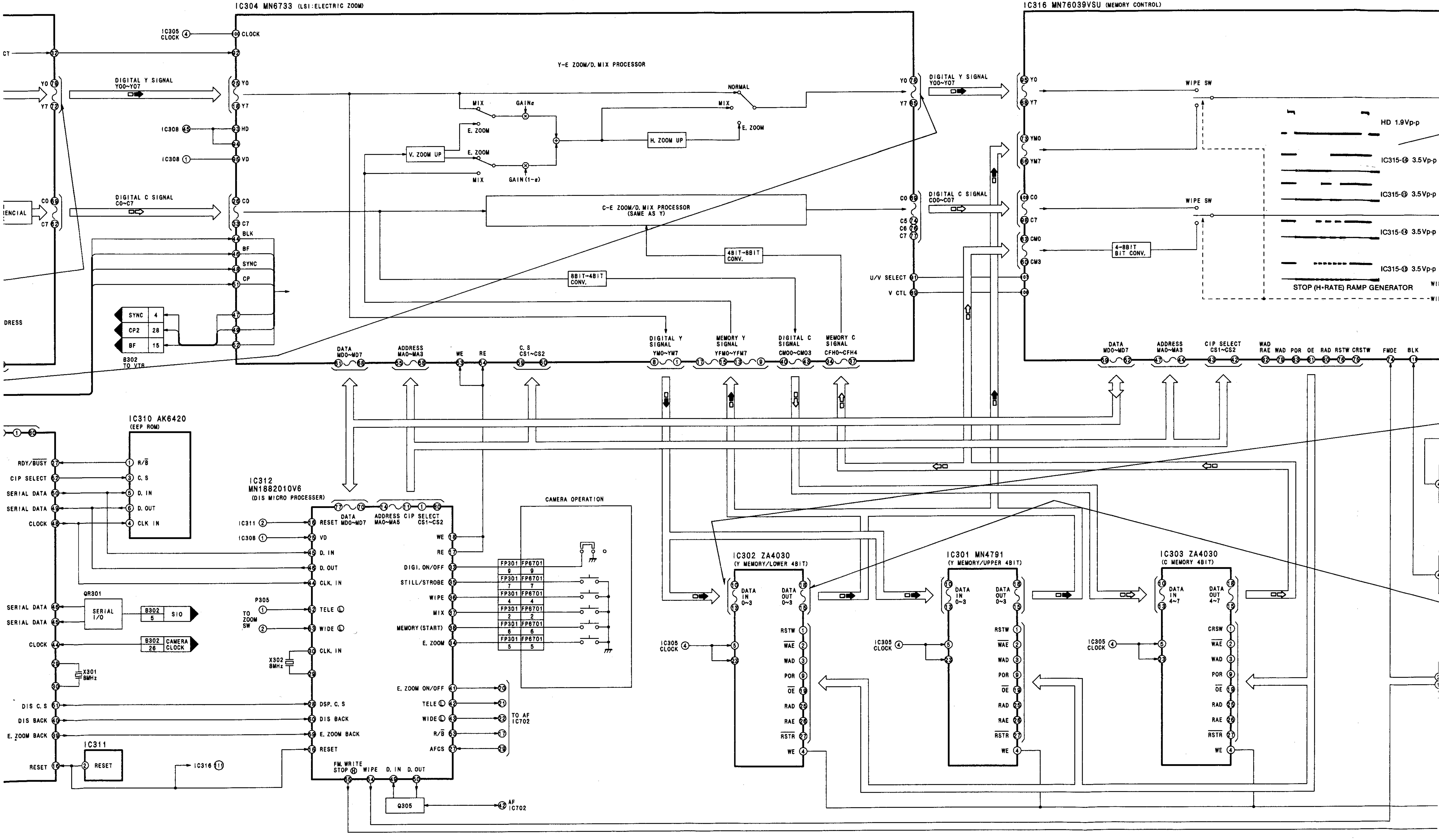

IC703 (AF MICROPROCESSOR)
ZOOM POSITION DATA
When pushing the TELE button, this signal becomes Low level.
ZOOM SW0
When pushing the WIDE button, this signal becomes Low level.
ZOOM SW1
ZOOM ENCODER
ZOOM ENCODER
8BIT A/D
MFL2
MFL1
MANUAL FOCUS CTL
This signal becomes momentary high when turning to Power-on.
FOCUS ENCODER
ZOOM TRACKING CTL
QR701
LED DRIVE
LED CTL
GAIN CONTROL
8BIT D/A
IC708 (AF MOTOR DRIVE)
MOTOR DRIVE 1
MOTOR DRIVE 2
MOTOR DRIVE 3
MOTOR DRIVE 4
RESET
ENABLE
CLK
CW/CCW
FOCUS MOTOR CONTROL
AF SUB CTL
ZOOM1
ZOOM0
ZOOM MOTOR CONTROL
IC706 (ZOOM MOTOR DRIVE)
LOGIC
LOGIC
. 5V.
. 5V.
IC702-43 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)
IC702-44 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)
IC702-36 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (2msec./div.)
VH DET
VL DET
MIX
MPX
VH GATE
VH FILTER
VL GATE
VL FILTER
H. PRE GATE
V. PRE GATE
A/D CONVERTER
OSC
X702 8MHz
IC704 (ALC CTL)
PWM
FROM PROCESS CIRCUIT IC306- ㉛
ALC DET
FROM PROCESS CIRCUIT
DC voltage which is changed depending on zoom condition.
IC705
V REF (+)
V REF (−)
oltage which is changed depending on incoming light intencity.
S 5V
C GAIN CTL
Y GAIN CTL
Y GAIN CTL
Y GAIN CTL
CL709
DC voltage which is changed depending on IRIS condition.
IC701
RESET
IC707
5V REG.
CAM 5V
NO REG
X701
CP2
CP1
CL702
CL701
WHD
VD
FROM PROCESS CIRCUIT
GAIN CONTROL
CL710
CL710 CAMERA REC
1.2Vp-p (H•RATE) GRAY SCALE
IC703
PEAK DET
Y AGC
ENCODER
CONTRAST CTL
DC CTL
CP2
CP1
CLAMP
LPF
CDS SIG.
IC703-20, 21, 25 CAMERA REC
0.3Vp-p (H•RATE) GRAY SCALE
HIGH LIMI DET
REFERENCE VOLTAGE
1. 8V
3. 8V
VR701
HALL AMP CTL
CL708
V REF Ⓗ
CL707
V REF Ⓛ
FROM
HALL BIAS

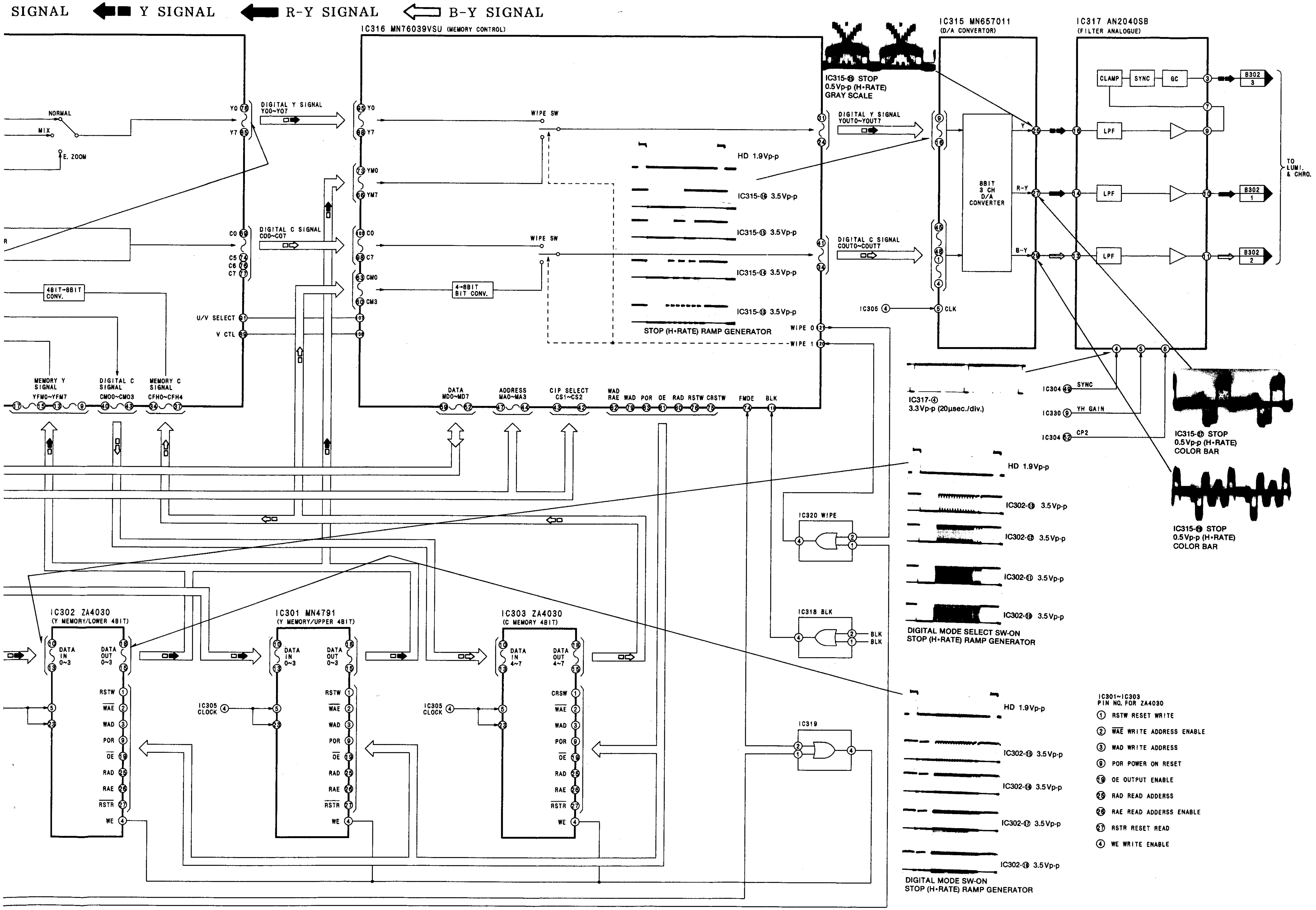
3-3. PROCESS BLOCK DIAGRAM


PRE VIDEO SIGNAL
IC307 MN655431 (8BIT DIGITAL VIDEO SIGNAL)
A/D CONVERTER
TOP/BOTTOM SAMPLING COMPARATOR
TOP/BOTTOM ENCODER
TOP/BOTTOM DATA LATCH
B301 12 CDS SIGNAL
B301 27 AD CLOCK
CLK
REF 1.3V
REF 3.3V
DIGITAL VIDEO SIGNAL IN0~IN7
IC307-⑲ STOP 2.2Vp-p (H·RATE) RAMP GENERATOR
IC305
INV.
IC307-⑫ 4.6Vp-p (1μsec./div.)
TO IC704 ⑤
IC201
B301 20 φH CLEAR PULSE
B301 17 CP
B301 23 FH/2 (12.7MHz)
IC308 MN73512XWAS (SSG)
H. DEC
C. DEC
V. DEC
1/4
1/103
1/2
1/625
HD
CP2
BF
SYNC
BLK
VD
IC201 ⑯ B301 16 FCK 25.43MHz
IC306 MN6732 (LSI:Y/C DIGITAL SIGNAL PROCESS)
D0
D7
1H DLY
1H DLY DIGITAL VIDEO SIGNAL D10~D17
LPF
H. APERTURE CIRCUIT
V. APERTURE CIRCUIT
APERTURE
HIGH LIGHT APERTURE
LINE SELECT HOLD
WHITE BALANCE
COLOUR SEPARATION TIME SHARING
GAIN CONTROL
LPF
COLOUR DIFFERENCIAL MATRIX
U/V SELECT
Y0 Y7
C0 C7
PWM IRIS
φH CLEAR PULSE
CP
FH/2
CLOCK
HD
VD
BF
SYNC
CP2
BLK
CLOCK
WRITE ENABLE
READ ENABLE
IRQ
DSP MICOM INTERFASE
DATA
ADDRESS
BF SYNC CP BLK
DIGITAL Y SIGNAL Y00~Y07
DIGITAL C SIGNAL C0~C7
IC304 MN6733 (LSI:ELE
IC305 CLOCK ④
CLOCK
Y0 Y7
IC308 ㊺ HD
IC308 ① VD
C0 C7
BLK BF SYNC CP
SYNC 4
CP2 28
BF 15
B302 TO VTR
HD 1.9Vp-p
IC307-⑩ 3.5Vp-p
IC307-⑨ 3.5Vp-p
IC307-⑧ 3.5Vp-p
IC307-⑦ 3.5Vp-p
STOP (H·RATE) RAMP GENERATOR
HD 1.9Vp-p
IC306-⑰ 3.5Vp-p
IC306-⑱ 3.5Vp-p
IC306-⑲ 3.5Vp-p
IC306-⑳ 3.5Vp-p
STOP (H·RATE) RAMP GENERATOR
HD 1.9Vp-p
IC304-⑮ 3.5Vp-p
IC304-⑭ 3.5Vp-p
IC304-⑬ 3.5Vp-p
IC304-⑫ 3.5Vp-p
STOP (H·RATE) RAMP GENERATOR
IC309 MN1882010V6 (DSP MICRO PROCESSER)
DATA DB0~DB7
ADDRESS AD0~AD7
WE RE IRQ VD
IC308 ①
IC201 ③ OV CONT
IC201 ㊽ LD
IC201 IC702 VMD 1 VMD 2 VMD 3
AF N/F
IC702 ㊾ AF/MF
AF WB FADO IRIS+ IRIS- PORTRAIT AUTO
RDY/BUSY
CIP SELECT
SERIAL DATA
SERIAL DATA
CLOCK
SERIAL DATA
SERIAL DATA
CLOCK
X301 8MHz
DIS C.S
DIS BACK
E. ZOOM BACK
RESET
IC310 AK6420 (EEP ROM)
R/B C.S D. IN D. OUT CLK IN
QR301 SERIAL I/O
B302 5 SIO
B302 26 CAMERA CLOCK
IC311 RESET
IC316 ⑪
IC312 MN1882010V6 (DIS MICRO PROCESSER)
IC311 ②
IC308 ①
P305 TO ZOOM SW
X302 8MHz
CAMERA OPERATION
FP6701 FP301 11 11
FP6701 FP301 8 8
FP6701 FP301 1 1
FP6701 FP301 3 3
FP6701 FP301 15 15
FP6701 FP301 16 16
FP6701 FP301 12 12
IC330 M62352GP (D/A CONVERTER)
ROAD PULSE IC309 ㊸
CLOCK IC309 ㊽
DATA IC309 ㊿
ZOOM ENC VREF- FP701 ⑳
ZOOM ENC VREF+ FP701 ⑲
TO AF CIRCUIT
HOLE BIAS IC703 ⑦
IRIS PWM IC306 ㊶
R-Y KB B302 ㉚
YH GAIN IC317 ⑤
B-Y KB B302 ㉙
IC204
B201 18 B301 18
B201 13 B301 13
B201 8 B301 8
B201 14 B301 14
B201 6 B301 6
R-B OB LOW CLIP GAIN GAIN

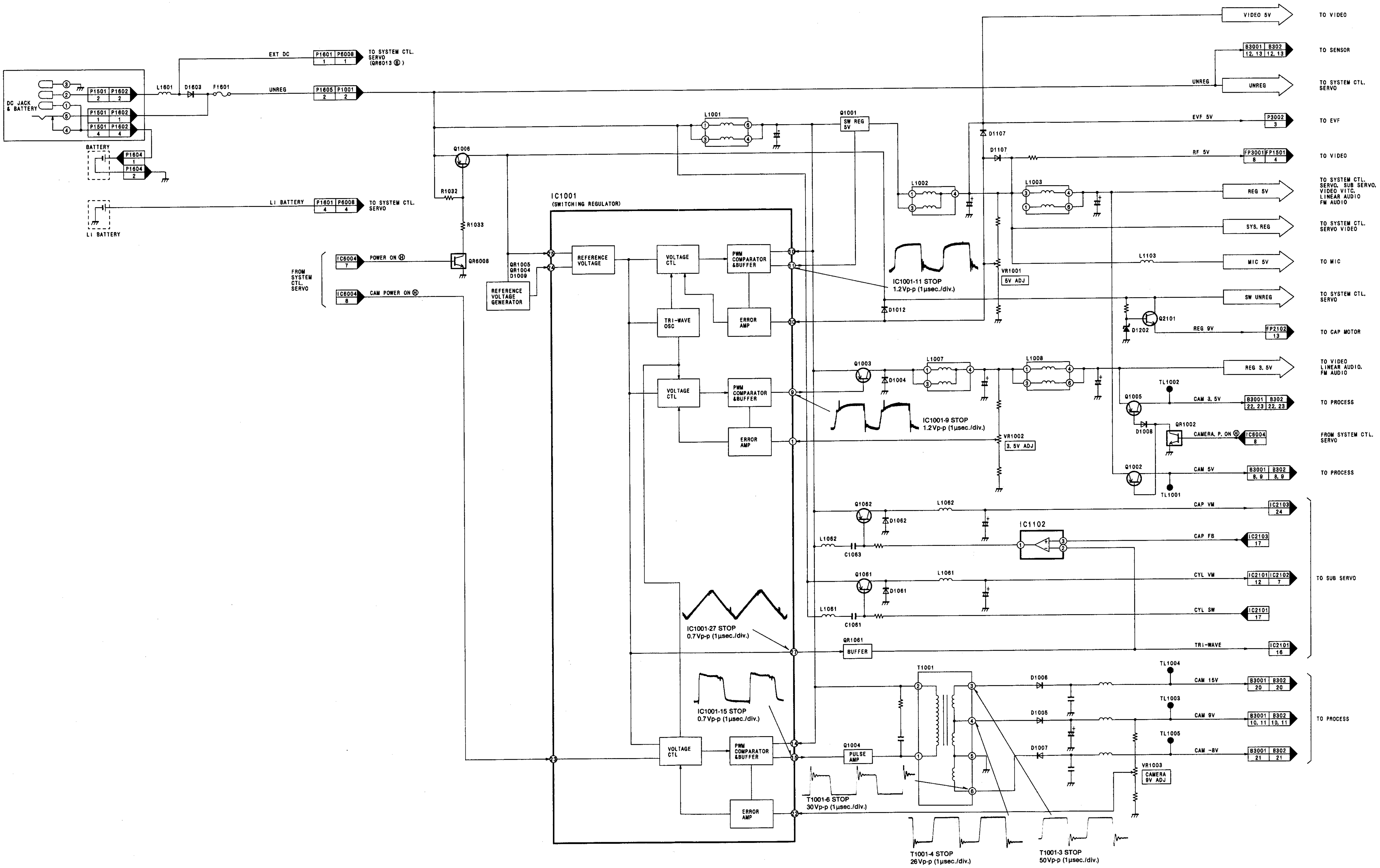
Back Page:
CCD DRIVE & AF Section

⇦■ PRE VIDEO SIGNAL ◀■□ DIGITAL Y SIGNAL ⇦□ DIGITAL C SIGNAL ◀■ Y SIGNAL ◀■ R-Y SIGNAL ⇦ B-Y SIGNAL

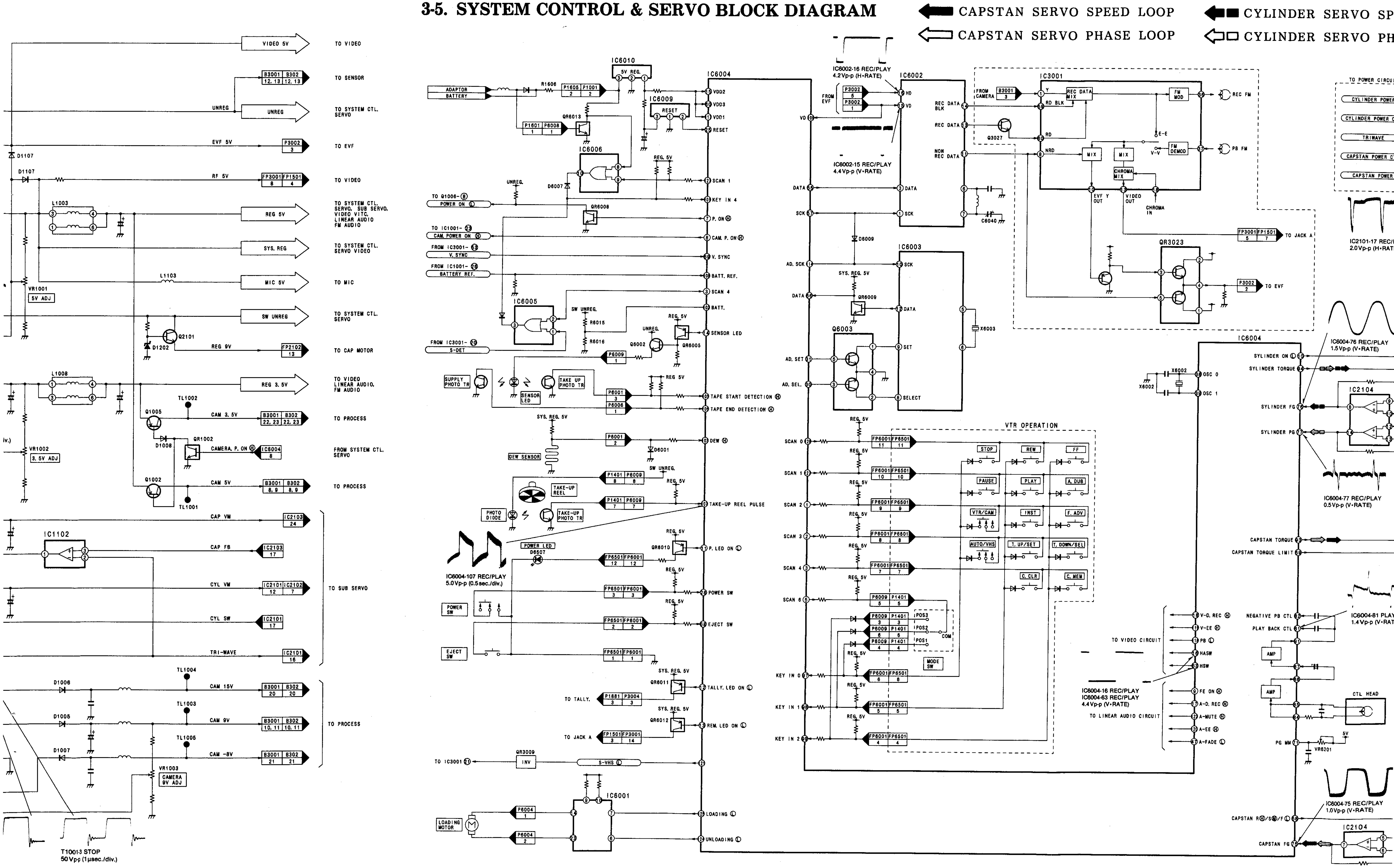

IC304 MN6733 (LSI:ELECTRIC ZOOM)
Y-E ZOOM/D.MIX PROCESSOR
C-E ZOOM/D.MIX PROCESSOR (SAME AS Y)
DIGITAL Y SIGNAL Y00~Y07
DIGITAL C SIGNAL C0~C7
V. ZOOM UP
H. ZOOM UP
NORMAL
MIX
E. ZOOM
GAINα
GAIN(1-α)
4BIT→8BIT CONV.
8BIT→4BIT CONV.
IC305 CLOCK
IC308
CLOCK
HD
VD
BLK
BF
SYNC
CP
U/V SELECT
V CTL
SYNC 4
CP2 28
BF 15
B302 TO VTR
DATA MD0~MD7
ADDRESS MA0~MA3
WE
RE
C.S CS1~CS2
DIGITAL Y SIGNAL YM0~YM7
MEMORY Y SIGNAL YFM0~YFM7
DIGITAL C SIGNAL CM00~CM03
MEMORY C SIGNAL CFH0~CFH4
IC316 MN76039VSU (MEMORY CONTROL)
WIPE SW
4→8BIT BIT CONV.
HD 1.9Vp-p
IC315 3.5Vp-p
STOP (H-RATE) RAMP GENERATOR
DATA MD0~MD7
ADDRESS MA0~MA3
CIP SELECT CS1~CS2
WAD RAE WAD POR OE RAD RSTW CRSTW
FMDE
BLK
IC310 AK6420 (EEP ROM)
R/B
C.S
D. IN
D. OUT
CLK IN
RDY/BUSY
CIP SELECT
SERIAL DATA
CLOCK
IC312 MN1882010V6 (DIS MICRO PROCESSER)
DATA MD0~MD7
ADDRESS MA0~MA5
CIP SELECT CS1~CS2
RESET
VD
D. IN
D. OUT
CLK. IN
TELE
WIDE
DSP. C.S
DIS BACK
E. ZOOM BACK
DIGI. ON/OFF
STILL/STROBE
WIPE
MIX
MEMORY (START)
E. ZOOM
E. ZOOM ON/OFF
R/B
AFCS
TO AF IC702
FM. WRITE STOP
Q305
AF IC702
CAMERA OPERATION
FP301 FP6701
QR301 SERIAL I/O
B302 5 SIO
B302 26 CAMERA CLOCK
X301 8MHz
X302 8MHz
P305 TO ZOOM SW
DIS C.S
IC311 RESET
IC316
IC302 ZA4030 (Y MEMORY/LOWER 4BIT)
IC301 MN4791 (Y MEMORY/UPPER 4BIT)
IC303 ZA4030 (C MEMORY 4BIT)
DATA IN 0~3
DATA OUT 0~3
DATA IN 4~7
DATA OUT 4~7
RSTW
WAE
WAD
POR
OE
RAD
RAE
RSTR
WE
CRSW


SIGNAL
Y SIGNAL
R-Y SIGNAL
B-Y SIGNAL
IC316 MN76039VSU (MEMORY CONTROL)
IC315 MN657011 (D/A CONVERTOR)
IC317 AN2040SB (FILTER ANALOGUE)
NORMAL
MIX
E. ZOOM
DIGITAL Y SIGNAL YO0~YO7
DIGITAL C SIGNAL CO0~CO7
4BIT-8BIT CONV.
4→8BIT BIT CONV.
U/V SELECT
V CTL
WIPE SW
HD 1.9Vp-p
IC315-⑯ 3.5Vp-p
IC315-⑬ 3.5Vp-p
IC315-⑫ 3.5Vp-p
IC315-⑪ 3.5Vp-p
STOP (H-RATE) RAMP GENERATOR
IC315-㉖ STOP 0.5Vp-p (H-RATE) GRAY SCALE
DIGITAL Y SIGNAL YOUT0~YOUT7
DIGITAL C SIGNAL COUT0~COUT7
8BIT 3 CH D/A CONVERTER
CLK
IC305
WIPE 0
WIPE 1
CLAMP
SYNC
GC
LPF
B302 3
B302 1
B302 2
TO LUMI. & CHRO.
IC304 SYNC
IC330 YH GAIN
IC304 CP2
IC317-④ 3.3Vp-p (20μsec./div.)
IC315-㉗ STOP 0.5Vp-p (H-RATE) COLOR BAR
IC315-㉘ STOP 0.5Vp-p (H-RATE) COLOR BAR
MEMORY Y SIGNAL YFM0~YFM7
DIGITAL C SIGNAL CM00~CM03
MEMORY C SIGNAL CFH0~CFH4
DATA MD0~MD7
ADDRESS MA0~MA3
CIP SELECT CS1~CS2
WAD RAE WAD POR OE RAD RSTW CRSTW
FMDE
BLK
IC320 WIPE
IC318 BLK
IC319
HD 1.9Vp-p
IC302-⑬ 3.5Vp-p
IC302-⑫ 3.5Vp-p
IC302-⑪ 3.5Vp-p
IC302-⑩ 3.5Vp-p
DIGITAL MODE SELECT SW-ON STOP (H-RATE) RAMP GENERATOR
IC302-⑮ 3.5Vp-p
IC302-⑯ 3.5Vp-p
IC302-⑰ 3.5Vp-p
IC302-⑱ 3.5Vp-p
DIGITAL MODE SW-ON STOP (H-RATE) RAMP GENERATOR
IC302 ZA4030 (Y MEMORY/LOWER 4BIT)
IC301 MN4791 (Y MEMORY/UPPER 4BIT)
IC303 ZA4030 (C MEMORY 4BIT)
DATA IN 0~3
DATA OUT 0~3
DATA IN 4~7
DATA OUT 4~7
IC305 CLOCK
RSTW
WAE
WAD
POR
OE
RAD
RAE
RSTR
WE
CRSW
IC301~IC303 PIN NO. FOR ZA4030
① RSTW RESET WRITE
② WAE WRITE ADDRESS ENABLE
③ WAD WRITE ADDRESS
⑨ POR POWER ON RESET
⑲ OE OUTPUT ENABLE
㉕ RAD READ ADDERSS
㉖ RAE READ ADDERSS ENABLE
㉗ RSTR RESET READ
④ WE WRITE ENABLE

3-4. POWER BLOCK DIAGRAM

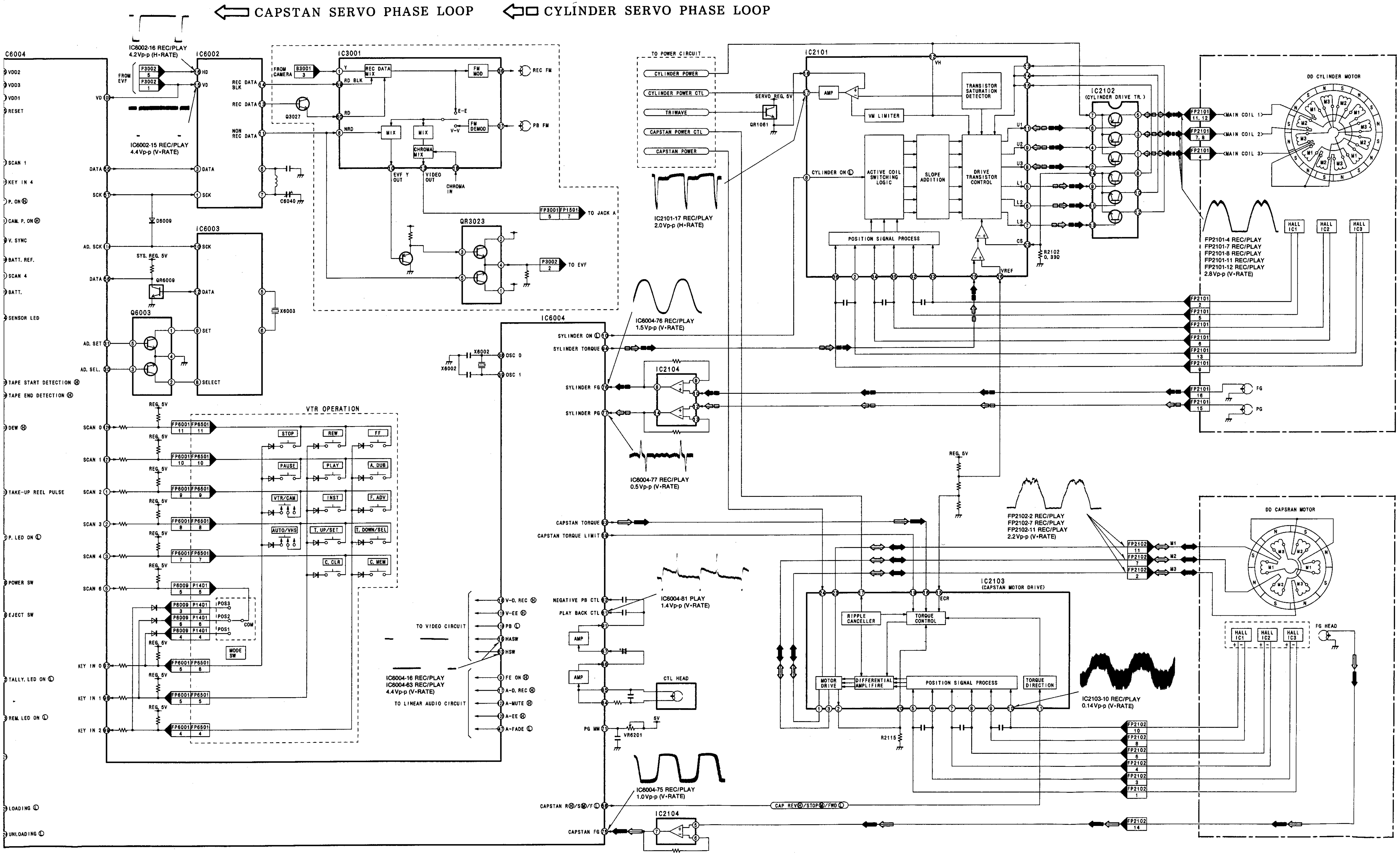

DC JACK & BATTERY
P1501 P1602
BATTERY
P1604
LI BATTERY
L1601
D1603
F1601
EXT DC
P1601 P6008
TO SYSTEM CTL. SERVO (QR6013 ⑥)
UNREG
P1605 P1001
TO SYSTEM CTL. SERVO
Q1006
R1032
R1033
QR6008
FROM SYSTEM CTL. SERVO
IC6004
POWER ON Ⓗ
CAM POWER ON Ⓗ
QR1005 QR1004 D1009
REFERENCE VOLTAGE GENERATOR
IC1001 (SWITCHING REGULATOR)
REFERENCE VOLTAGE
VOLTAGE CTL
PWM COMPARATOR &BUFFER
TRI-WAVE OSC
ERROR AMP
IC1001-27 STOP 0.7Vp-p (1μsec./div.)
IC1001-15 STOP 0.7Vp-p (1μsec./div.)
L1001
Q1001
SW REG 5V
IC1001-11 STOP 1.2Vp-p (1μsec./div.)
D1012
L1002
D1107
L1003
VR1001
5V ADJ
L1103
Q2101
D1202
Q1003
D1004
L1007
L1008
IC1001-9 STOP 1.2Vp-p (1μsec./div.)
VR1002
3.5V ADJ
TL1002
Q1005
D1008
QR1002
Q1002
TL1001
Q1062
D1062
L1062
C1063
IC1102
Q1061
D1061
L1061
C1061
QR1061
BUFFER
T1001
Q1004
PULSE AMP
T1001-6 STOP 30Vp-p (1μsec./div.)
T1001-4 STOP 26Vp-p (1μsec./div.)
T1001-3 STOP 50Vp-p (1μsec./div.)
D1006
D1005
D1007
TL1004
TL1003
TL1005
VR1003
CAMERA 9V ADJ
VIDEO 5V
TO VIDEO
B3001 B302 12, 13 12, 13
TO SENSOR
UNREG
TO SYSTEM CTL. SERVO
EVF 5V
P3002 3
TO EVF
RF 5V
FP3001 FP1501 6 4
TO VIDEO
REG 5V
TO SYSTEM CTL. SERVO, SUB SERVO, VIDEO VITC, LINEAR AUDIO FM AUDIO
SYS. REG
TO SYSTEM CTL. SERVO VIDEO
MIC 5V
TO MIC
SW UNREG
TO SYSTEM CTL. SERVO
REG 9V
FP2102 13
TO CAP MOTOR
REG 3.5V
TO VIDEO LINEAR AUDIO, FM AUDIO
CAM 3.5V
B3001 B302 22, 23 22, 23
TO PROCESS
CAMERA. P. ON Ⓗ
IC6004 8
FROM SYSTEM CTL. SERVO
CAM 5V
B3001 B302 8, 9 8, 9
TO PROCESS
CAP VM
IC2103 24
CAP FG
IC2103 17
CYL VM
IC2101 IC2102 12 7
CYL SW
IC2101 17
TRI-WAVE
IC2101 16
TO SUB SERVO
CAM 15V
B3001 B302 20 20
CAM 9V
B3001 B302 10, 11 10, 11
CAM -8V
B3001 B302 21 21
TO PROCESS

3-5. SYSTEM CONTROL & SERVO BLOCK DIAGRAM


CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SP
CYLINDER SERVO PH
VIDEO 5V
TO VIDEO
B3001 B302 12,13 12,13
TO SENSOR
UNREG
TO SYSTEM CTL. SERVO
EVF 5V
P3002 3
TO EVF
D1107
RF 5V
FP3001 FP1501 8 4
L1003
REG 5V
TO SYSTEM CTL. SERVO, SUB SERVO, VIDEO VITC, LINEAR AUDIO FM AUDIO
SYS. REG
TO SYSTEM CTL. SERVO VIDEO
L1103
MIC 5V
TO MIC
VR1001
5V ADJ
SW UNREG
TO SYSTEM CTL. SERVO
Q2101
D1202
REG 9V
FP2102 13
TO CAP MOTOR
L1008
REG 3.5V
TO VIDEO LINEAR AUDIO, FM AUDIO
TL1002
Q1005
CAM 3.5V
B3001 B302 22,23 22,23
TO PROCESS
D1008
QR1002
CAMERA P. ON Ⓗ
IC6004 8
FROM SYSTEM CTL. SERVO
VR1002
3.5V ADJ
Q1002
CAM 5V
B3001 B302 8,9 8,9
TL1001
CAP VM
IC2103 24
IC1102
CAP FB
IC2103 17
CYL VM
IC2101 IC2102 12 7
TO SUB SERVO
CYL SW
IC2101 17
TRI-WAVE
IC2101 16
TL1004
D1006
CAM 15V
B3001 B302 20 20
TL1003
D1005
CAM 9V
B3001 B302 10,11 10,11
TO PROCESS
TL1005
D1007
CAM -8V
B3001 B302 21 21
VR1003
CAMERA 9V ADJ
T1001③ STOP
50Vp-p (1µsec./div.)
IC6010
5V REG.
IC6004
ADAPTOR
BATTERY
R1606
P1605 P1001 2 2
IC6009
RESET
VDD2
VDD3
VDD1
RESET
QR6013
P1601 P6008 1 1
IC6006
REG. 5V
SCAN 1
UNREG.
D6007
TO Q1006-⑧
POWER ON Ⓛ
KEY IN 4
QR6008
P. ON Ⓗ
TO IC1001-㉓
CAM. POWER ON Ⓗ
CAM. P. ON Ⓗ
FROM IC3001-㊸
V. SYNC
V. SYNC
FROM IC1001-㉖
BATTERY REF.
BATT. REF.
SCAN 4
IC6005
SW UNREG.
R6015
R6016
BATT.
REG. 5V
UNREG.
Q6002
QR6005
SENSOR LED
FROM IC3001-㉖
S-DET
P6009 1
SUPPLY PHOTO TR
SENSOR LED
TAKE UP PHOTO TR
REG 5V
P6001 3
P6006 1
TAPE START DETECTION Ⓗ
TAPE END DETECTION Ⓗ
SYS. REG. 5V
P6001 2
DEW Ⓗ
D6001
DEW SENSOR
SW UNREG.
P1401 P6009 8 8
REG. 5V
TAKE-UP REEL
P1401 P6009 7 7
TAKE-UP REEL PULSE
PHOTO DIODE
TAKE-UP PHOTO TR
REG. 5V
IC6004-107 REC/PLAY
5.0Vp-p (0.5sec./div.)
POWER LED
D6507
QR6010
FP6501 FP6001 12 12
P. LED ON Ⓛ
REG. 5V
FP6501 FP6001 3 3
POWER SW
POWER SW
REG. 5V
FP6501 FP6001 2 2
EJECT SW
EJECT SW
FP6501 FP6001 1 1
SYS. REG. 5V
QR6011
TALLY. LED ON Ⓛ
TO TALLY.
P1681 P3004 3 3
SYS. REG. 5V
QR6012
REM. LED ON Ⓛ
TO JACK A
FP1501 FP3001 3 14
QR3009
TO IC3001 ㉑
INV
S-VHS Ⓛ
IC6001
LOADING MOTOR
P6004 1
P6004 2
LOADING Ⓛ
UNLOADING Ⓛ
IC6002-16 REC/PLAY
4.2Vp-p (H•RATE)
IC6002
FROM EVF
P3002 5
P3002 1
HD
VD
VD
IC6002-15 REC/PLAY
4.4Vp-p (V•RATE)
REC DATA BLK
REC DATA
NON REC DATA
Q3027
DATA
SCK
DATA
SCK
C6040
D6009
IC6003
AD. SCK
SYS. REG. 5V
QR6009
DATA
Q6003
X6003
AD. SET
SET
AD. SEL.
SELECT
IC3001
FROM CAMERA
B3001 3
Y
RD BLK
RD
NRD
REC DATA MIX
FM MOD
REC FM
E-E
V-V
MIX
MIX
CHROMA MIX
FM DEMOD
PB FM
EVF Y OUT
VIDEO OUT
CHROMA IN
FP3001 FP1501 5 7
TO JACK A
QR3023
P3002 2
TO EVF
TO POWER CIRCU
CYLINDER POWER
CYLINDER POWER C
TRIWAVE
CAPSTAN POWER C
CAPSTAN POWER
IC2101-17 REC/
2.0Vp-p (H•RAT
IC6004
SYLINDER ON Ⓛ
SYLINDER TORQUE
X6002
OSC 0
OSC 1
IC6004-76 REC/PLAY
1.5Vp-p (V•RATE)
IC2104
SYLINDER FG
SYLINDER PG
IC6004-77 REC/PLAY
0.5Vp-p (V•RATE)
VTR OPERATION
SCAN 0
FP6001 FP6501 11 11
STOP
REW
FF
SCAN 1
FP6001 FP6501 10 10
PAUSE
PLAY
A. DUB
SCAN 2
FP6001 FP6501 9 9
VTR/CAM
INST
F. ADV
SCAN 3
FP6001 FP6501 8 8
AUTO/VHS
T. UP/SET
T. DOWN/SEL
SCAN 4
FP6001 FP6501 7 7
C. CLR
C. MEM
SCAN 6
P6009 P1401 5 5
P6009 P1401 3 3
POS3
P6009 P1401 6 6
POS2
COM
P6009 P1401 4 4
POS1
MODE SW
KEY IN 0
FP6001 FP6501 6 6
KEY IN 1
FP6001 FP6501 5 5
KEY IN 2
FP6001 FP6501 4 4
REG. 5V
CAPSTAN TORQUE
CAPSTAN TORQUE LIMIT
V-D. REC Ⓗ
V-EE Ⓗ
PB Ⓛ
HASW
HSW
TO VIDEO CIRCUIT
IC6004-16 REC/PLAY
IC6004-63 REC/PLAY
4.4Vp-p (V•RATE)
TO LINEAR AUDIO CIRCUIT
FE ON Ⓗ
A-D. REC Ⓗ
A-MUTE Ⓗ
A-EE Ⓗ
A-FADE Ⓛ
NEGATIVE PB CTL
PLAY BACK CTL
IC6004-81 PLAY
1.4Vp-p (V•RAT
AMP
AMP
CTL HEAD
PG MM
5V
VR6201
IC6004-75 REC/PLAY
1.0Vp-p (V•RATE)
CAPSTAN RⒽ/SⒽ/FⓁ
CAPSTAN FG
IC2104

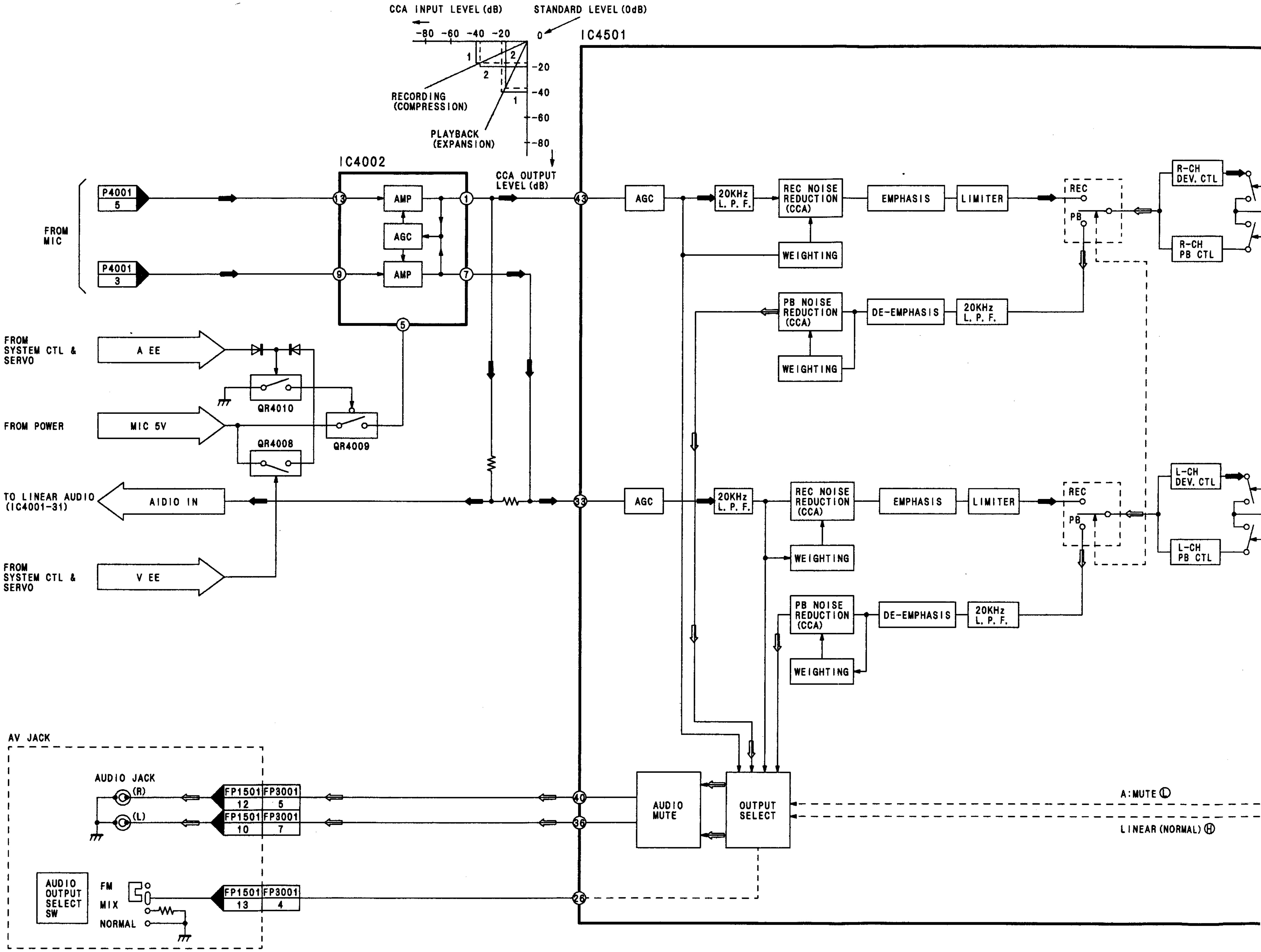
BLOCK DIAGRAM

◀■ CAPSTAN SERVO SPEED LOOP
◁□ CAPSTAN SERVO PHASE LOOP
◀■■ CYLINDER SERVO SPEED LOOP
◁□□ CYLINDER SERVO PHASE LOOP



IC6004
IC6002
IC6003
IC3001
QR3023
Q6003
Q3027
IC2101
IC2102 (CYLINDER DRIVE TR.)
IC2103 (CAPSTAN MOTOR DRIVE)
IC2104
IC6002-16 REC/PLAY 4.2Vp-p (H•RATE)
IC6002-15 REC/PLAY 4.4Vp-p (V•RATE)
FROM EVF
FROM CAMERA
REC DATA MIX
FM MOD
FM DEMOD
REC FM
PB FM
MIX
CHROMA MIX
EVF Y OUT
VIDEO OUT
CHROMA IN
TO JACK A
TO EVF
TO POWER CIRCUIT
CYLINDER POWER
CYLINDER POWER CTL
TRIWAVE
CAPSTAN POWER CTL
CAPSTAN POWER
SERVO REG. 5V
IC2101-17 REC/PLAY 2.0Vp-p (H•RATE)
AMP
VM LIMITER
TRANSISTOR SATURATION DETECTOR
ACTIVE COIL SWITCHING LOGIC
SLOPE ADDITION
DRIVE TRANSISTOR CONTROL
POSITION SIGNAL PROCESS
DD CYLINDER MOTOR
MAIN COIL 1
MAIN COIL 2
MAIN COIL 3
HALL IC1
HALL IC2
HALL IC3
FP2101-4 REC/PLAY
FP2101-7 REC/PLAY
FP2101-8 REC/PLAY
FP2101-11 REC/PLAY
FP2101-12 REC/PLAY
2.8Vp-p (V•RATE)
IC6004-76 REC/PLAY 1.5Vp-p (V•RATE)
IC6004-77 REC/PLAY 0.5Vp-p (V•RATE)
SYLINDER ON
SYLINDER TORQUE
SYLINDER FG
SYLINDER PG
FG
PG
VTR OPERATION
STOP
REW
FF
PAUSE
PLAY
A. DUB
VTR/CAM
INST
F. ADV
AUTO/VHS
T. UP/SET
T. DOWN/SEL
C. CLR
C. MEM
MODE SW
POS1
POS2
POS3
COM
SCAN 0
SCAN 1
SCAN 2
SCAN 3
SCAN 4
SCAN 6
KEY IN 0
KEY IN 1
KEY IN 2
REG. 5V
VDD2
VDD3
VDD1
RESET
KEY IN 4
P. ON
CAM. P. ON
V. SYNC
BATT. REF.
BATT.
SENSOR LED
TAPE START DETECTION
TAPE END DETECTION
DEW
TAKE-UP REEL PULSE
P. LED ON
POWER SW
EJECT SW
TALLY. LED ON
REM. LED ON
LOADING
UNLOADING
SYS. REG. 5V
TO VIDEO CIRCUIT
TO LINEAR AUDIO CIRCUIT
V-D. REC
V-EE
PB
HASW
HSW
FE ON
A-D. REC
A-MUTE
A-EE
A-FADE
IC6004-16 REC/PLAY
IC6004-63 REC/PLAY
4.4Vp-p (V•RATE)
CAPSTAN TORQUE
CAPSTAN TORQUE LIMIT
NEGATIVE PB CTL
PLAY BACK CTL
IC6004-81 PLAY 1.4Vp-p (V•RATE)
CTL HEAD
PG MM
VR6201
IC6004-75 REC/PLAY 1.0Vp-p (V•RATE)
CAPSTAN R/S/F
CAP REV/STOP/FWD
CAPSTAN FG
FP2102-2 REC/PLAY
FP2102-7 REC/PLAY
FP2102-11 REC/PLAY
2.2Vp-p (V•RATE)
DD CAPSRAN MOTOR
RIPPLE CANCELLER
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIRE
TORQUE DIRECTION
IC2103-10 REC/PLAY 0.14Vp-p (V•RATE)
FG HEAD
R2115

3-6. Hi-Fi AUDIO BLOCK DIAGRAM

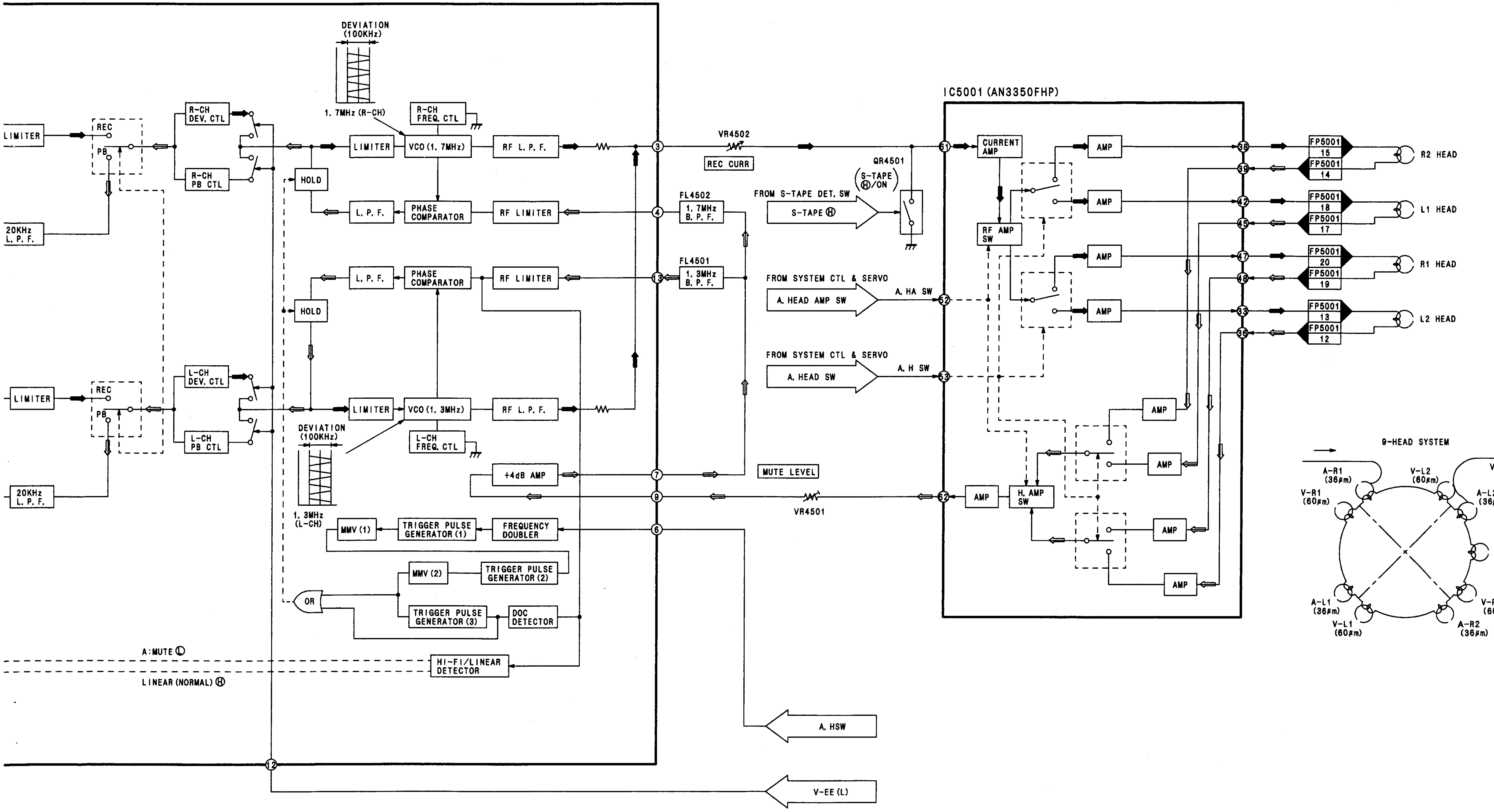

CCA INPUT LEVEL (dB)
STANDARD LEVEL (0dB)
-80 -60 -40 -20 0
-20
-40
-60
-80
1
2
RECORDING (COMPRESSION)
PLAYBACK (EXPANSION)
CCA OUTPUT LEVEL (dB)
IC4501
IC4002
FROM MIC
P4001 5
P4001 3
AMP
AGC
AMP
13
9
1
7
5
FROM SYSTEM CTL & SERVO
A EE
QR4010
FROM POWER
MIC 5V
QR4008
QR4009
TO LINEAR AUDIO (IC4001-31)
AIDIO IN
FROM SYSTEM CTL & SERVO
V EE
43
33
AGC
20KHz L. P. F.
REC NOISE REDUCTION (CCA)
EMPHASIS
LIMITER
WEIGHTING
PB NOISE REDUCTION (CCA)
DE-EMPHASIS
20KHz L. P. F.
WEIGHTING
REC
PB
R-CH DEV. CTL
R-CH PB CTL
AGC
20KHz L. P. F.
REC NOISE REDUCTION (CCA)
EMPHASIS
LIMITER
WEIGHTING
PB NOISE REDUCTION (CCA)
DE-EMPHASIS
20KHz L. P. F.
WEIGHTING
REC
PB
L-CH DEV. CTL
L-CH PB CTL
AV JACK
AUDIO JACK
(R)
(L)
FP1501 12
FP3001 5
FP1501 10
FP3001 7
FP1501 13
FP3001 4
AUDIO OUTPUT SELECT SW
FM
MIX
NORMAL
40
36
26
AUDIO MUTE
OUTPUT SELECT
A:MUTE Ⓛ
LINEAR (NORMAL) Ⓗ

Back Page:
POWER, SYSTEM CTL & SERVO Section

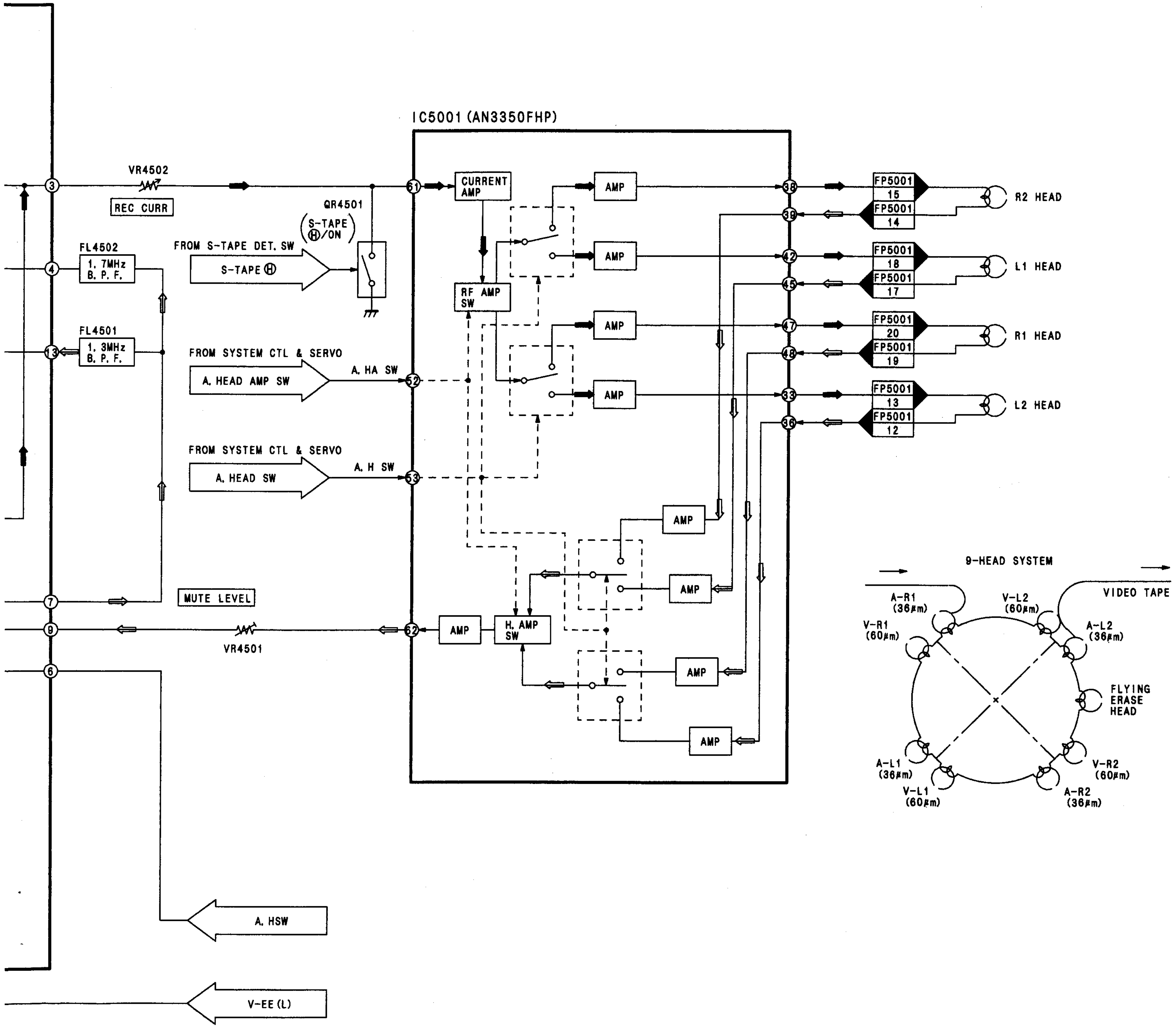
on

➡ MAIN SIGNAL PATH IN REC MODE

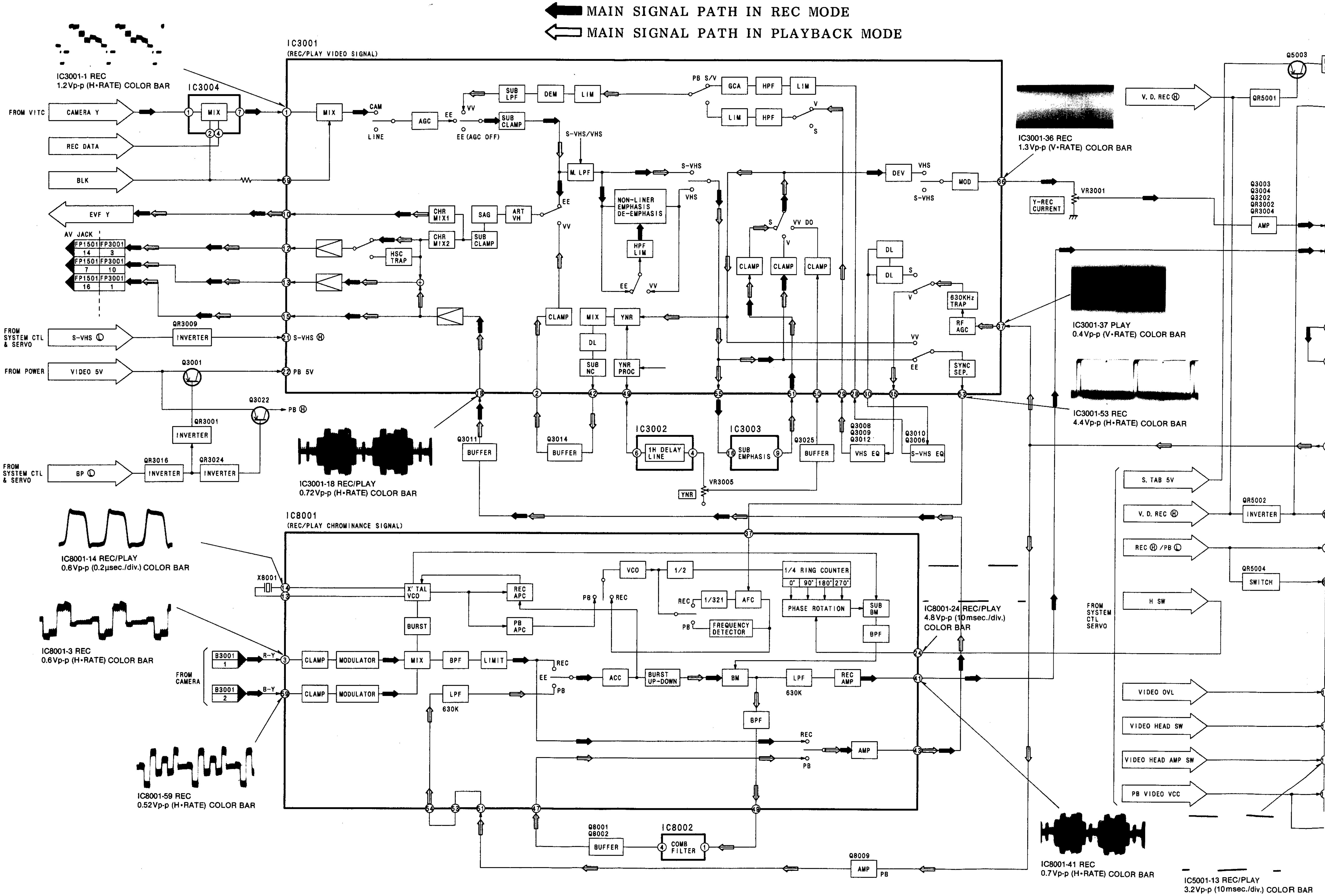
⇦ MAIN SIGNAL PATH IN PLAYBACK MODE


DEVIATION (100KHz)
1. 7MHz (R-CH)
LIMITER
REC
PB
20KHz L. P. F.
R-CH DEV. CTL
R-CH PB CTL
R-CH FREQ. CTL
HOLD
LIMITER
VCO (1. 7MHz)
RF L. P. F.
L. P. F.
PHASE COMPARATOR
RF LIMITER
L-CH DEV. CTL
L-CH PB CTL
L-CH FREQ. CTL
VCO (1. 3MHz)
DEVIATION (100KHz)
1. 3MHz (L-CH)
+4dB AMP
MMV (1)
TRIGGER PULSE GENERATOR (1)
FREQUENCY DOUBLER
MMV (2)
TRIGGER PULSE GENERATOR (2)
OR
TRIGGER PULSE GENERATOR (3)
DOC DETECTOR
HI-FI/LINEAR DETECTOR
A: MUTE Ⓛ
LINEAR (NORMAL) Ⓗ
3
4
13
7
9
6
12
VR4502
REC CURR
FL4502 1. 7MHz B. P. F.
FL4501 1. 3MHz B. P. F.
QR4501
(S-TAPE Ⓗ/ON)
FROM S-TAPE DET. SW
S-TAPE Ⓗ
FROM SYSTEM CTL & SERVO
A. HEAD AMP SW
A. HA SW
FROM SYSTEM CTL & SERVO
A. HEAD SW
A. H SW
MUTE LEVEL
VR4501
A. HSW
V-EE (L)
IC5001 (AN3350FHP)
CURRENT AMP
RF AMP SW
AMP
H. AMP SW
61
52
53
62
38
39
42
45
47
48
33
36
FP5001 15
FP5001 14
FP5001 18
FP5001 17
FP5001 20
FP5001 19
FP5001 13
FP5001 12
R2 HEAD
L1 HEAD
R1 HEAD
L2 HEAD
9-HEAD SYSTEM
A-R1 (36μm)
V-L2 (60μm)
V-R1 (60μm)
A-L1 (36μm)
V-L1 (60μm)
A-R2 (36μm)

MODE


IC5001 (AN3350FHP)
VR4502
REC CURR
QR4501
(S-TAPE Ⓗ/ON)
FL4502
1. 7MHz B. P. F.
FL4501
1. 3MHz B. P. F.
FROM S-TAPE DET. SW
S-TAPE Ⓗ
FROM SYSTEM CTL & SERVO
A. HEAD AMP SW
A. HA SW
FROM SYSTEM CTL & SERVO
A. HEAD SW
A. H SW
MUTE LEVEL
VR4501
A. HSW
V-EE (L)
CURRENT AMP
RF AMP SW
AMP
H. AMP SW
3
4
13
7
9
6
51
52
53
62
38
39
42
45
47
48
33
36
FP5001 15
FP5001 14
FP5001 18
FP5001 17
FP5001 20
FP5001 19
FP5001 13
FP5001 12
R2 HEAD
L1 HEAD
R1 HEAD
L2 HEAD
9-HEAD SYSTEM
VIDEO TAPE
A-R1 (36μm)
V-L2 (60μm)
V-R1 (60μm)
A-L2 (36μm)
FLYING ERASE HEAD
A-L1 (36μm)
V-R2 (60μm)
V-L1 (60μm)
A-R2 (36μm)

3-7. LUMINANCE/CHROMINANCE & HEAD AMP BLOCK DIAGRAM

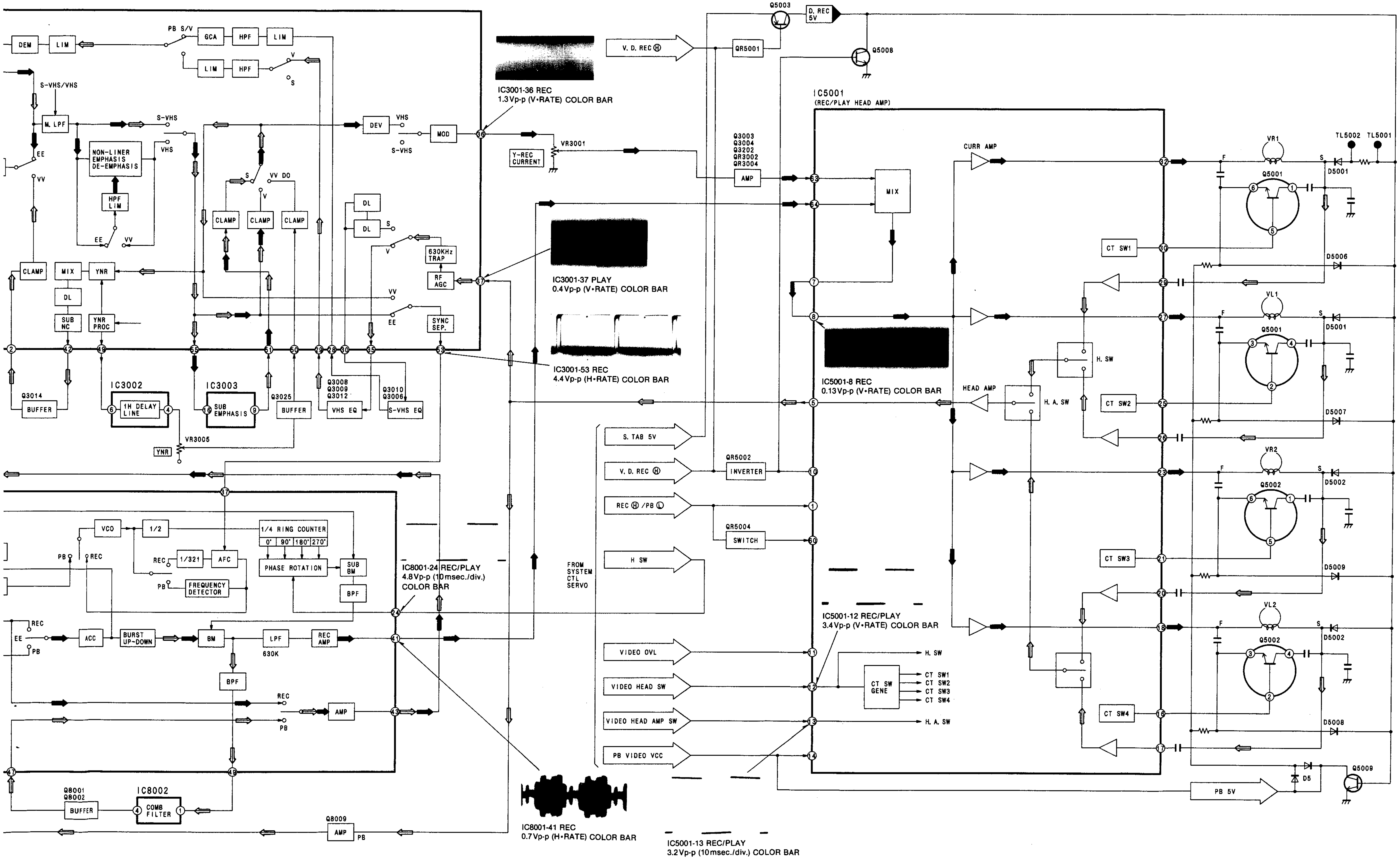

MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
IC3001-1 REC
1.2Vp-p (H•RATE) COLOR BAR
IC3001
(REC/PLAY VIDEO SIGNAL)
IC3004
MIX
FROM VITC
CAMERA Y
REC DATA
BLK
EVF Y
AV JACK
FP1501 FP3001
14 3
7 10
16 1
FROM SYSTEM CTL & SERVO
S-VHS Ⓛ
QR3009
INVERTER
S-VHS Ⓗ
FROM POWER
VIDEO 5V
Q3001
PB 5V
Q3022
PB Ⓗ
QR3001
INVERTER
QR3016
QR3024
BP Ⓛ
CAM
LINE
AGC
EE
EE (AGC OFF)
VV
SUB LPF
DEM
LIM
SUB CLAMP
S-VHS/VHS
M. LPF
CHR MIX1
CHR MIX2
SAG
ART VH
SUB CLAMP
HSC TRAP
PB S/V
GCA
HPF
LIM
V
S
S-VHS
NON-LINER EMPHASIS DE-EMPHASIS
VHS
HPF LIM
VV DO
CLAMP
DL
630KHz TRAP
RF AGC
SYNC SEP.
MIX
YNR
SUB NC
YNR PROC
DEV
MOD
IC3001-36 REC
1.3Vp-p (V•RATE) COLOR BAR
Y-REC CURRENT
VR3001
Q5003
V. D. REC Ⓗ
QR5001
Q3003
Q3004
Q3202
QR3002
QR3004
AMP
IC3001-37 PLAY
0.4Vp-p (V•RATE) COLOR BAR
IC3001-53 REC
4.4Vp-p (H•RATE) COLOR BAR
Q3011
BUFFER
Q3014
IC3002
1H DELAY LINE
IC3003
SUB EMPHASIS
Q3025
Q3008
Q3009
Q3012
VHS EQ
Q3010
Q3006
S-VHS EQ
VR3005
YNR
IC3001-18 REC/PLAY
0.72Vp-p (H•RATE) COLOR BAR
IC8001
(REC/PLAY CHROMINANCE SIGNAL)
IC8001-14 REC/PLAY
0.6Vp-p (0.2μsec./div.) COLOR BAR
X8001
X' TAL VCO
REC APC
PB APC
BURST
VCO
1/2
1/4 RING COUNTER
0° 90° 180° 270°
PHASE ROTATION
SUB BM
BPF
1/321
AFC
FREQUENCY DETECTOR
PB
REC
IC8001-3 REC
0.6Vp-p (H•RATE) COLOR BAR
FROM CAMERA
B3001 1
B3001 2
R-Y
B-Y
CLAMP
MODULATOR
MIX
BPF
LIMIT
ACC
BURST UP-DOWN
BM
LPF
630K
REC AMP
LPF
630K
AMP
IC8001-59 REC
0.52Vp-p (H•RATE) COLOR BAR
Q8001
Q8002
BUFFER
IC8002
COMB FILTER
Q8009
AMP
IC8001-24 REC/PLAY
4.8Vp-p (10msec./div.)
COLOR BAR
IC8001-41 REC
0.7Vp-p (H•RATE) COLOR BAR
S. TAB 5V
V. D. REC Ⓗ
QR5002
INVERTER
REC Ⓗ /PB Ⓛ
QR5004
SWITCH
H SW
FROM SYSTEM CTL SERVO
VIDEO OVL
VIDEO HEAD SW
VIDEO HEAD AMP SW
PB VIDEO VCC
IC5001-13 REC/PLAY
3.2Vp-p (10msec./div.) COLOR BAR

DIAGRAM

LUMINANCE/CHROMINANCE & HEAD AMP Section

MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK MODE


DEM
LIM
PB S/V
GCA
HPF
LIM
LIM
HPF
V
S
S-VHS/VHS
M. LPF
S-VHS
DEV
VHS
S-VHS
MOD
EE
VV
NON-LINER EMPHASIS DE-EMPHASIS
VHS
HPF LIM
EE
VV
S
VV DO
V
CLAMP
CLAMP
CLAMP
DL
DL
S
V
630KHz TRAP
RF AGC
CLAMP
MIX
YNR
DL
SUB NC
YNR PROC
VV
EE
SYNC SEP.
Q3014
BUFFER
IC3002
1H DELAY LINE
IC3003
SUB EMPHASIS
Q3025
BUFFER
Q3008 Q3009 Q3012
VHS EQ
Q3010 Q3006
S-VHS EQ
YNR
VR3005
IC3001-36 REC
1.3Vp-p (V•RATE) COLOR BAR
Y-REC CURRENT
VR3001
IC3001-37 PLAY
0.4Vp-p (V•RATE) COLOR BAR
IC3001-53 REC
4.4Vp-p (H•RATE) COLOR BAR
VCO
1/2
1/4 RING COUNTER
0° 90° 180° 270°
PB
REC
REC
1/321
AFC
PHASE ROTATION
SUB BM
PB
FREQUENCY DETECTOR
BPF
IC8001-24 REC/PLAY
4.8Vp-p (10msec./div.) COLOR BAR
REC
EE
PB
ACC
BURST UP-DOWN
BM
LPF
630K
REC AMP
BPF
REC
PB
AMP
Q8001 Q8002
BUFFER
IC8002
COMB FILTER
Q8009
AMP
PB
IC8001-41 REC
0.7Vp-p (H•RATE) COLOR BAR
Q5003
D. REC 5V
Q5008
V. D. REC Ⓗ
QR5001
IC5001
(REC/PLAY HEAD AMP)
Q3003 Q3004 Q3202 QR3002 QR3004
AMP
MIX
CURR AMP
IC5001-8 REC
0.13Vp-p (V•RATE) COLOR BAR
HEAD AMP
H. SW
H. A. SW
S. TAB 5V
V. D. REC Ⓗ
QR5002
INVERTER
REC Ⓗ /PB Ⓛ
QR5004
SWITCH
H SW
FROM SYSTEM CTL SERVO
VIDEO OVL
VIDEO HEAD SW
VIDEO HEAD AMP SW
PB VIDEO VCC
IC5001-12 REC/PLAY
3.4Vp-p (V•RATE) COLOR BAR
H. SW
CT SW GENE
CT SW1
CT SW2
CT SW3
CT SW4
H. A. SW
IC5001-13 REC/PLAY
3.2Vp-p (10msec./div.) COLOR BAR
CT SW1
CT SW2
CT SW3
CT SW4
TL5002
TL5001
VR1
Q5001
D5001
D5006
VL1
Q5001
D5001
D5007
VR2
Q5002
D5002
D5009
VL2
Q5002
D5002
D5008
F
S
PB 5V
D5
Q5009

Next Page:
CCD DRIVE Section

SECTION 4

SCHEMATIC DIAGRAMS

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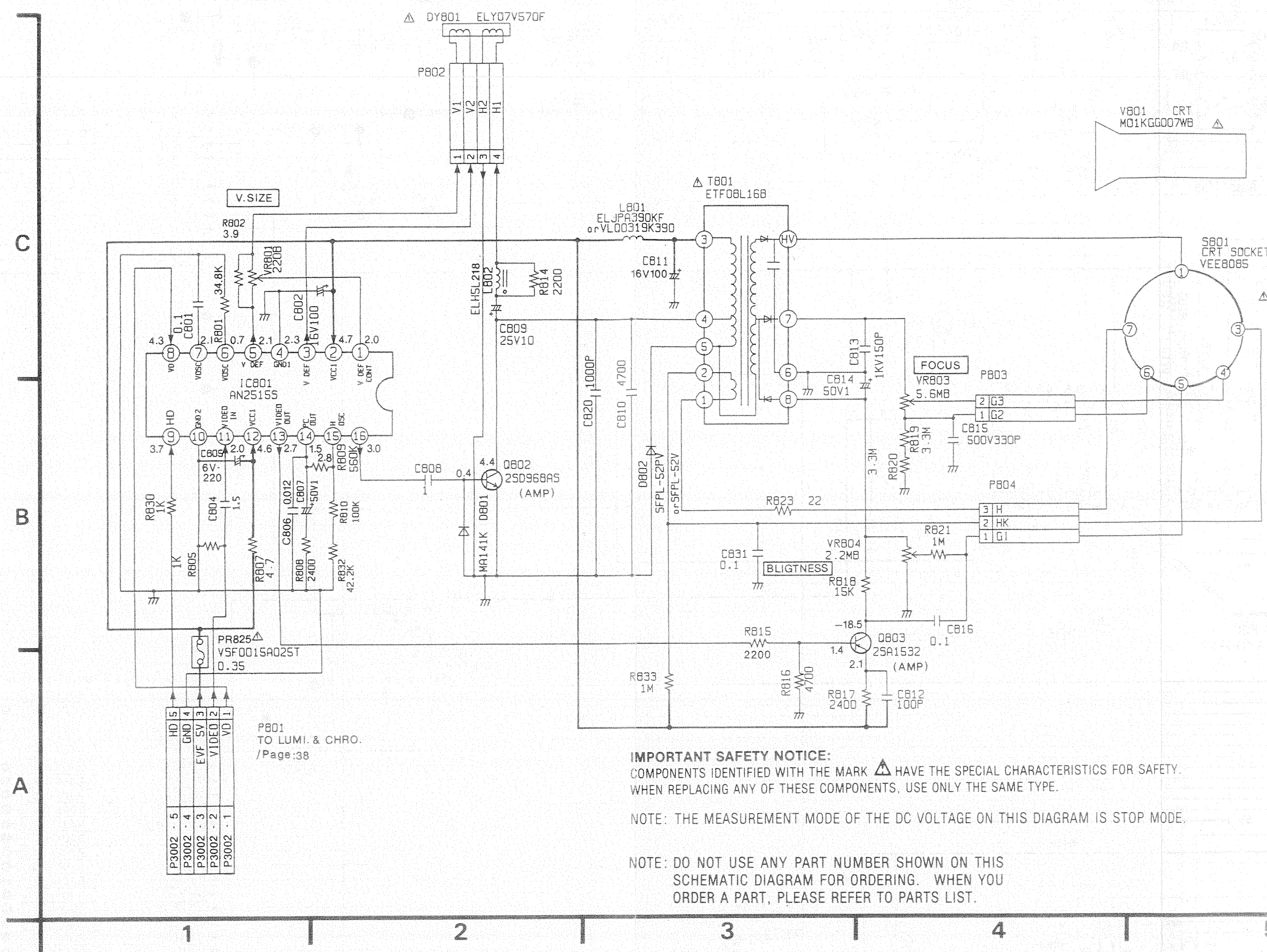
1. EVF SCHEMATIC DIAGRAM



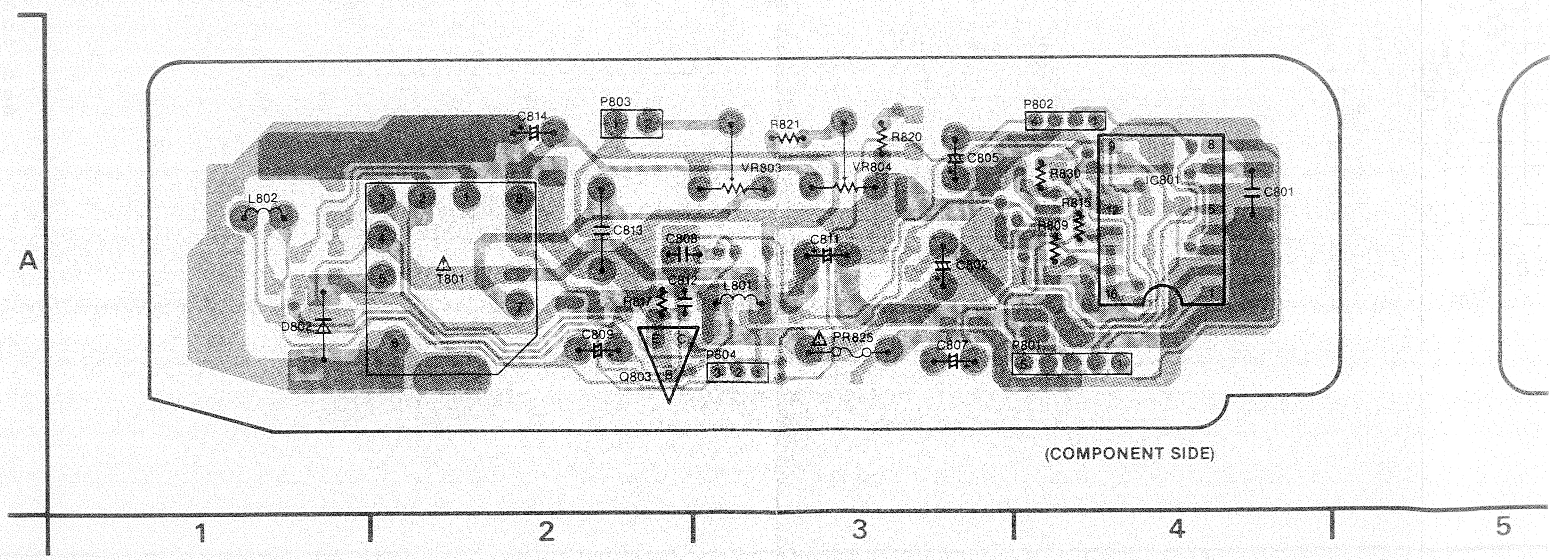
⚠ DY801 ELY07V570F
P802
V1
V2
H2
H1
V801 CRT
MD1KG0007WB ⚠
V.SIZE
R802
3.9
VR801
220B
34.8K
R801
C801
0.1
C802
15V100
IC801
AN2515S
⚠ T801
ETF08L16B
L801
ELJPA390KF
or VL00319K390
C811
16V100
HV
S801
CRT SOCKET
VEE8085
L802
ELH5L218
R814
2200
C809
25V10
C820
1000P
C810
4700
C813
1KV150P
C814
50V1
FOCUS
VR803
5.6MB
R819
3.3M
R820
3.3M
C815
500V330P
P803
G3
G2
P804
H
HK
G1
C805
6V-220
C804
1.5
C806
0.012
C807
50V1
R809
560K
R810
100K
R830
1K
R805
1K
R807
4.7
R808
2400
R832
42.2K
C808
Q802
2SD968AS
(AMP)
D801
MA141K
D802
SFPL-52PV
or SFPL-52V
R823 22
R821
1M
C831
0.1
VR804
2.2MB
BLIGTNESS
R818
15K
C816
0.1
Q803
2SA1532
(AMP)
R815
2200
R833
1M
R816
4700
R817
2400
C812
100P
PR825⚠
VSF001SA02ST
0.35
HD
GND
EVF 5V
VIDEO
VD
P801
TO LUMI. & CHRO.
/Page:38
P3002 - 5
P3002 - 4
P3002 - 3
P3002 - 2
P3002 - 1
C
B
A
1
2
3
4

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

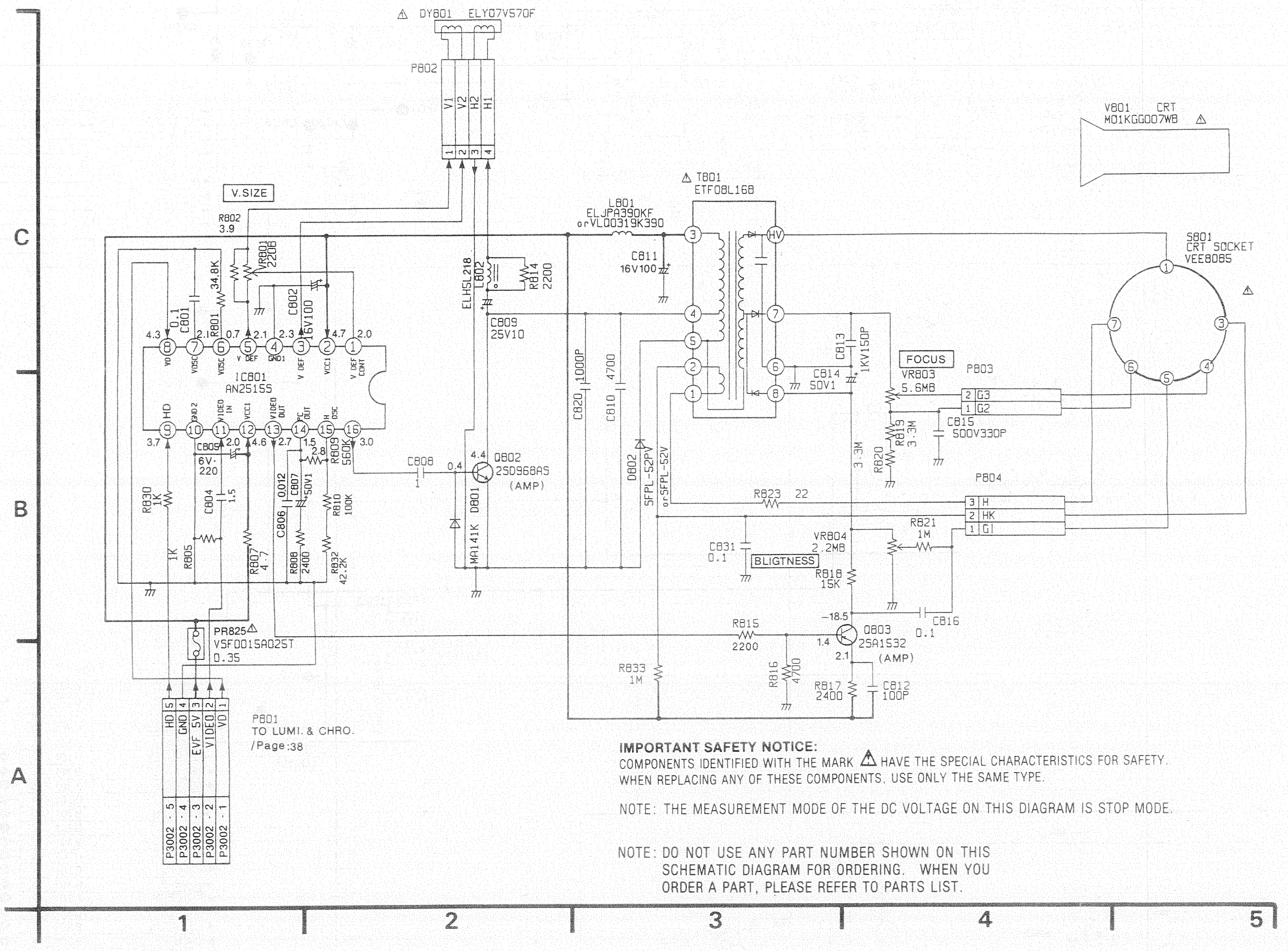
2. EVF C.B.A. (VEP28058A)



C814
P803
R821
R820
P802
L802
VR803
VR804
C805
R830
IC801
C801
C813
T801
C808
C811
R809
D802
C802
R817
C812
L801
C809
PR825
C807
P801
Q803
P804
A
1
2
3
4
5

(COMPONENT SIDE)

1. EVF SCHEMATIC DIAGRAM


DY801 ELY07V570F
P802
V1 V2 H2 H1
V.SIZE
R802 3.9
VR801 220B
R801 34.8K
C801 0.1
C802 16V100
IC801 AN2515S
L801 ELJPA390KF or VL00319K390
T801 ETF08L168
C811 16V100
ELHEL218 L802
R814 2200
C809 25V10
C820 1000P
C810 4700
D802 SFPL-52P or SFPL-52V
C808 1
Q802 2SD968AS (AMP)
D801 MA141K
V801 CRT M01KGG007WB
S801 CRT SOCKET VEE8085
FOCUS
VR803 5.6M8
C813 1KV150P
C814 50V1
C815 500V330P
P803 G3 G2
P804 H HK G1
R820 3.3M
R819 3.3M
R823 22
R821 1M
VR804 2.2M8
BLIGTNESS
C831 0.1
R818 15K
Q803 2SA1532 (AMP)
C816 0.1
R815 2200
R816 4700
R817 2400
C812 100P
R833 1M
R830 1K
R805 1K
C804 1.5
C805 6V 220
C806 0.012
C807 50V1
R807 4.7
R808 2400
R810 100K
R809 560K
R832 42.2K
PR825 V5F0015A025T 0.35
P801 TO LUMI. & CHRO. /Page:38
HD 5
GND 4
EVF 5V 3
VIDEO 2
VD 1
P3002-5
P3002-4
P3002-3
P3002-2
P3002-1
C
B
A
1
2
3
4
5

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

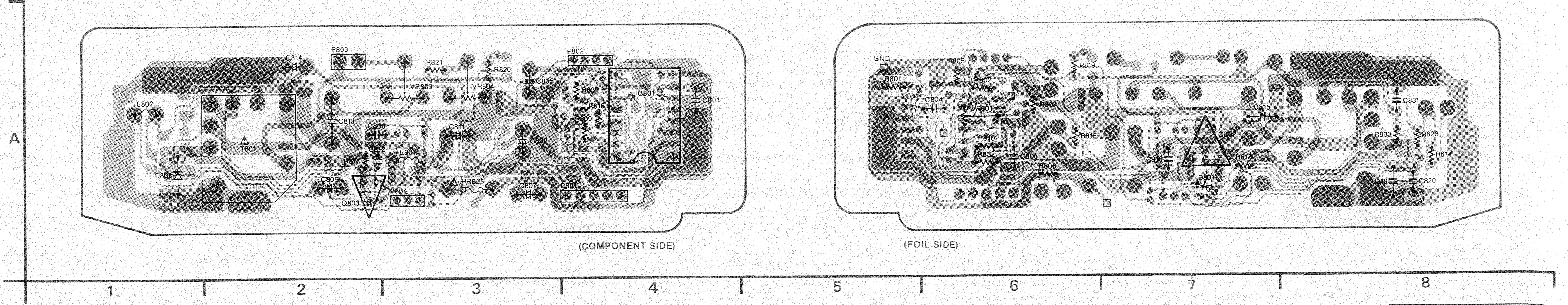
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

EVF C.B.A.	
Transistor	
Q802 Q803	A-7 A-2
Integrated Circuit	
IC801	A-4
Adjustment	
VR801 VR803 VR804	A-6 A-3 A-3
Connector	
P801 P802 P803 P804	A-4 A-4 A-2 A-3

ADDRESS INFORMATION

2. EVF C.B.A. (VEP28058A)

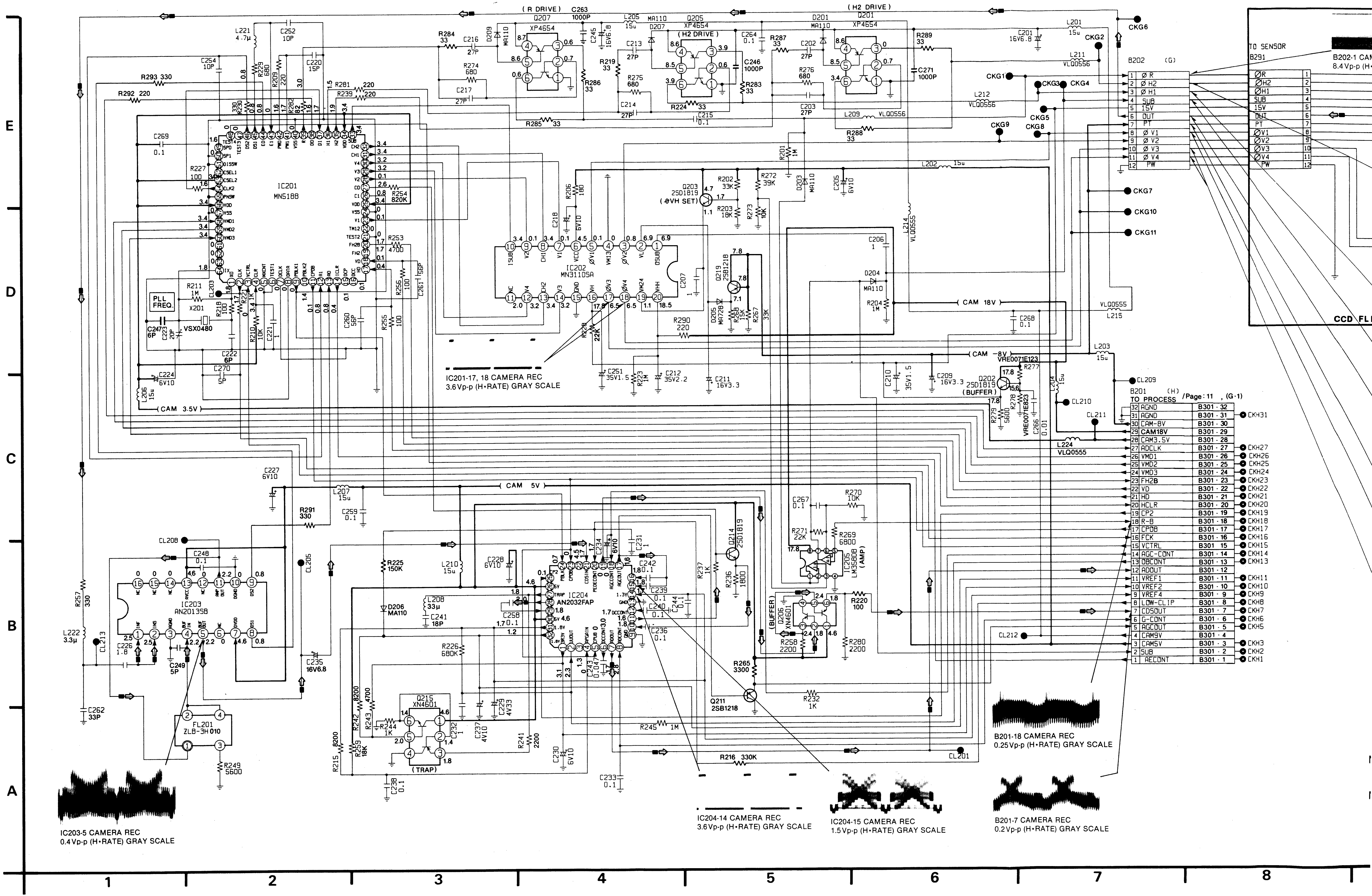

C814
P803
R821
R820
P802
VR803
VR804
C805
R830
IC801
C801
L802
C813
R819
R809
T801
C808
C812
C811
C802
L801
D802
C809
R807
PR825
C807
P801
Q803
P804
GND
R805
R801
R802
C804
VR801
R810
R832
C806
R808
R807
R816
C815
C831
Q802
R833
R823
R814
C816
R818
D801
C810
C820
A
1
2
3
4
5
6
7
8

(COMPONENT SIDE)

(FOIL SIDE)

Next Page:
CCD DRIVE Section

3. CCD DRIVE SCHEMATIC DIGRAM


VIDEO SIGNAL
(R DRIVE)
(H2 DRIVE)
IC201 MN5188
IC202 MN31105A
IC203 AN20135B
IC204 AN2032FAP
IC205 LM358DB (AMP)
Q201 XP4654
Q203 2SD1819 (θVH SET)
Q202 2SD1819 (BUFFER)
Q205 XP4654
Q206 XN4601 (BUFFER)
Q207 XP4654
Q211 2SB1218
Q214 2SD1819
Q215 XN4601 (TRAP)
Q219 2SB1218
FL201 ZLB-3H010
X201 VSX0480
PLL FREQ.
(CAM 3.5V)
(CAM 5V)
(CAM 18V)
(CAM -8V)
TO SENSOR B291
B202 (G)
B202-1 CAM
8.4Vp-p (H•
CCD FL
B201 (H) TO PROCESS /Page : 11 , (G-1)
32 AGND
31 AGND
30 CAM-8V
29 CAM18V
28 CAM3.5V
27 ADCLK
26 VMD1
25 VMD2
24 VMD3
23 FH2B
22 VD
21 HD
20 HCLR
19 CP2
18 R-B
17 CPOB
16 FCK
15 VCTRL
14 AGC-CONT
13 OBCONT
12 ADOUT
11 VREF1
10 VREF2
9 VREF4
8 LOW-CLIP
7 CDSOUT
6 G-CONT
5 AGCOUT
4 CAM9V
3 CAM5V
2 SUB
1 AECONT
1 ØR
2 Ø H2
3 Ø H1
4 SUB
5 15V
6 OUT
7 PT
8 Ø V1
9 Ø V2
10 Ø V3
11 Ø V4
12 PW
E
D
C
B
A
1
2
3
4
5
6
7
8

IC201-17, 18 CAMERA REC
3.6Vp-p (H•RATE) GRAY SCALE

IC203-5 CAMERA REC
0.4Vp-p (H•RATE) GRAY SCALE

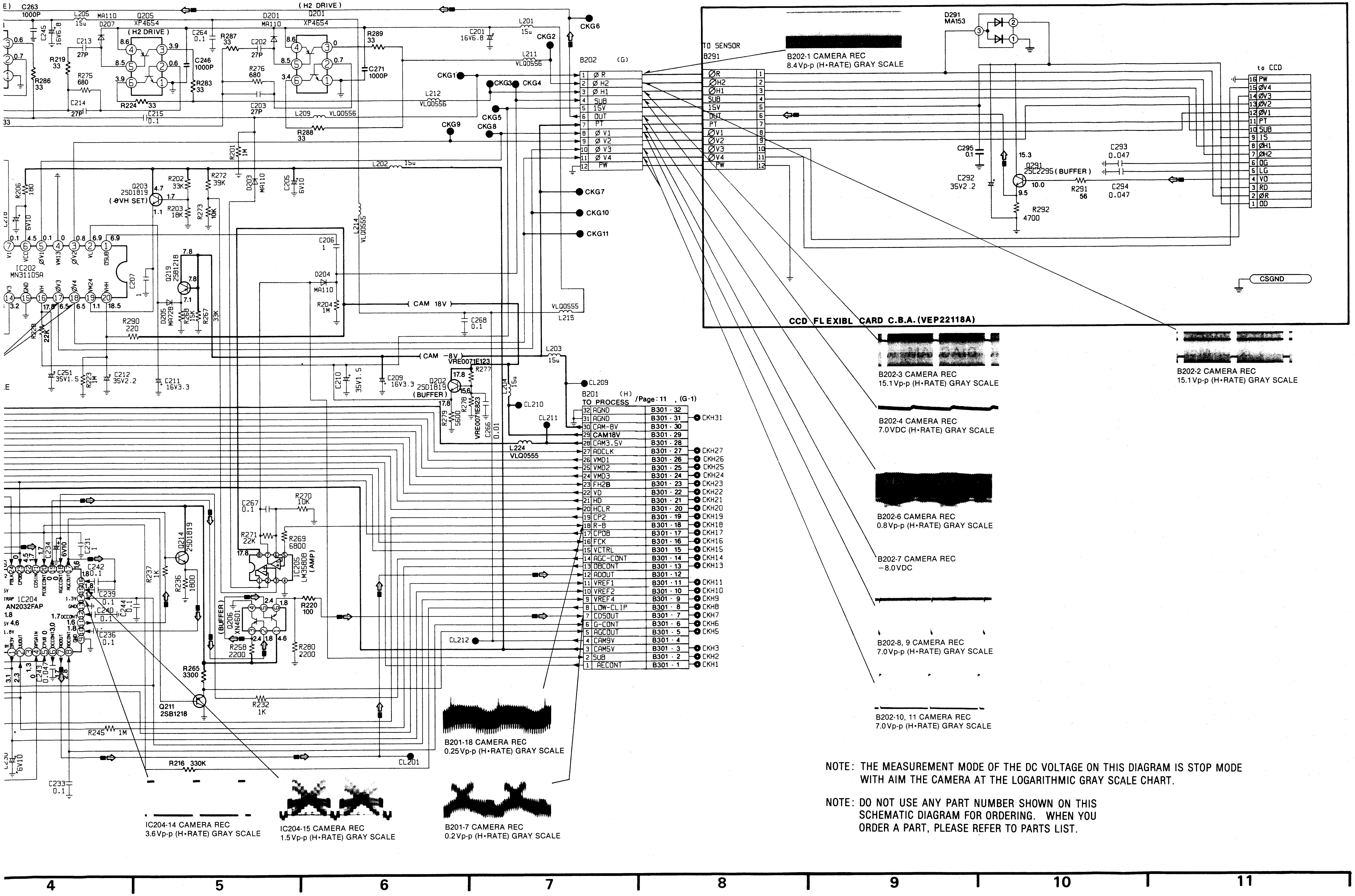
IC204-14 CAMERA REC
3.6Vp-p (H•RATE) GRAY SCALE

IC204-15 CAMERA REC
1.5Vp-p (H•RATE) GRAY SCALE

B201-18 CAMERA REC
0.25Vp-p (H•RATE) GRAY SCALE

B201-7 CAMERA REC
0.2Vp-p (H•RATE) GRAY SCALE

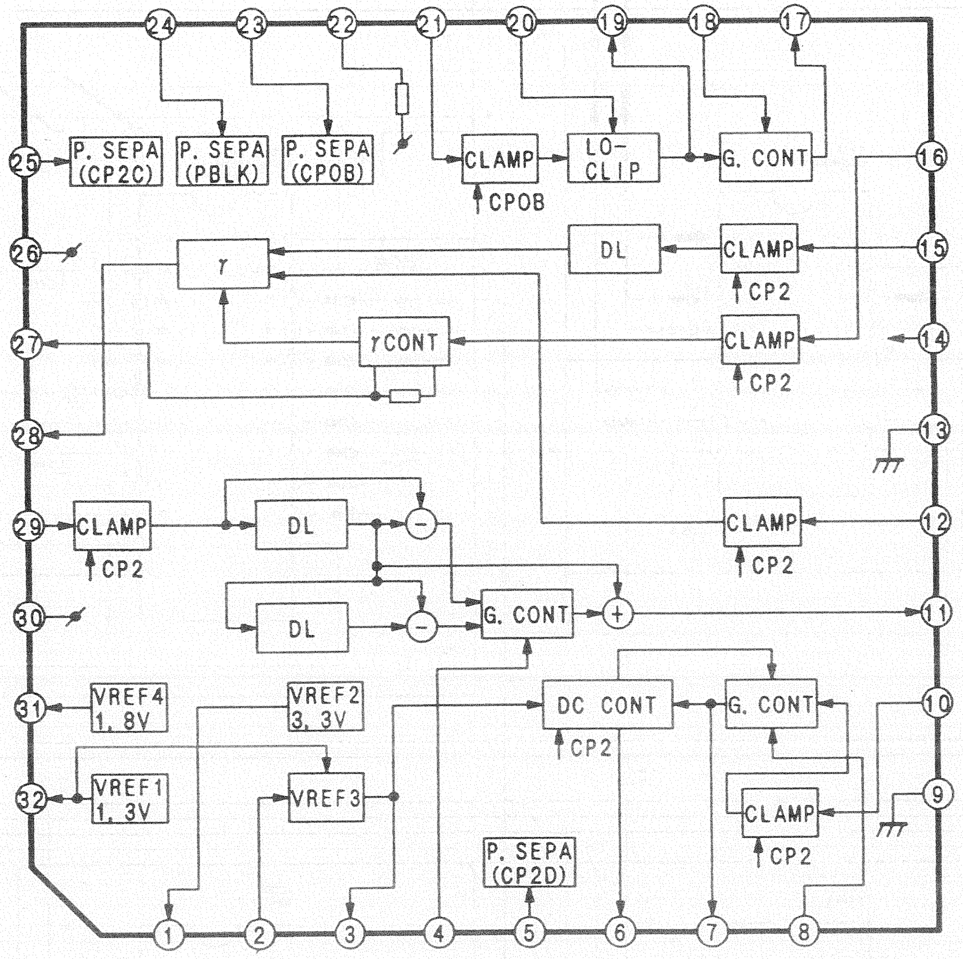
VIDEO SIGNAL


(H2 DRIVE)
Q205 XP4654
Q201 XP4654
D201 MA110
D207 MA110
CKG6
CKG2
CKG1
CKG3
CKG4
CKG5
CKG7
CKG8
CKG9
CKG10
CKG11
B202 (G)
1 ØR
2 Ø H2
3 Ø H1
4 SUB
5 15V
6 OUT
7 PT
8 Ø V1
9 Ø V2
10 Ø V3
11 Ø V4
12 PW
TO SENSOR
B291
CCD FLEXIBL CARD C.B.A.(VEP22118A)
D291 MA153
Q291 2SC2295 (BUFFER)
to CCD
16 PW
15 ØV4
14 ØV3
13 ØV2
12 ØV1
11 PT
10 SUB
9 15
8 ØH1
7 ØH2
6 OG
5 LG
4 VO
3 RD
2 ØR
1 OD
CSGND
IC202 MN3110SA
Q203 2SD1819 (ØVH SET)
Q219 2SB1218
D205 MA728
D204 MA110
D203 MA110
CAM 18V
CAM -8V
Q202 2SD1819 (BUFFER)
B201 (H) TO PROCESS /Page: 11 , (G-1)
32 AGND B301 · 32
31 AGND B301 · 31 CKH31
30 CAM-8V B301 · 30
29 CAM18V B301 · 29
28 CAM3.5V B301 · 28
27 ADCLK B301 · 27 CKH27
26 VMD1 B301 · 26 CKH26
25 VMD2 B301 · 25 CKH25
24 VMD3 B301 · 24 CKH24
23 FH2B B301 · 23 CKH23
22 VD B301 · 22 CKH22
21 HD B301 · 21 CKH21
20 HCLR B301 · 20 CKH20
19 CP2 B301 · 19 CKH19
18 R-B B301 · 18 CKH18
17 CPOB B301 · 17 CKH17
16 FCK B301 · 16 CKH16
15 VCTRL B301 · 15 CKH15
14 AGC-CONT B301 · 14 CKH14
13 OBCONT B301 · 13 CKH13
12 ADOUT B301 · 12
11 VREF1 B301 · 11 CKH11
10 VREF2 B301 · 10 CKH10
9 VREF4 B301 · 9 CKH9
8 LOW-CLIP B301 · 8 CKH8
7 CDSOUT B301 · 7 CKH7
6 G-CONT B301 · 6 CKH6
5 AGCOUT B301 · 5 CKH5
4 CAM9V B301 · 4
3 CAM5V B301 · 3 CKH3
2 SUB B301 · 2 CKH2
1 AECONT B301 · 1 CKH1
IC204 AN2032FAP
Q214 2SD1819
Q206 XN4601 (BUFFER)
IC205 LM358DB (AMP)
Q211 2SB1218
CL201
CL209
CL210
CL211
CL212
B202-1 CAMERA REC 8.4Vp-p (H·RATE) GRAY SCALE
B202-2 CAMERA REC 15.1Vp-p (H·RATE) GRAY SCALE
B202-3 CAMERA REC 15.1Vp-p (H·RATE) GRAY SCALE
B202-4 CAMERA REC 7.0VDC (H·RATE) GRAY SCALE
B202-6 CAMERA REC 0.8Vp-p (H·RATE) GRAY SCALE
B202-7 CAMERA REC -8.0VDC
B202-8, 9 CAMERA REC 7.0Vp-p (H·RATE) GRAY SCALE
B202-10, 11 CAMERA REC 7.0Vp-p (H·RATE) GRAY SCALE
B201-18 CAMERA REC 0.25Vp-p (H·RATE) GRAY SCALE
B201-7 CAMERA REC 0.2Vp-p (H·RATE) GRAY SCALE
IC204-14 CAMERA REC 3.6Vp-p (H·RATE) GRAY SCALE
IC204-15 CAMERA REC 1.5Vp-p (H·RATE) GRAY SCALE
4
5
6
7
8
9
10
11

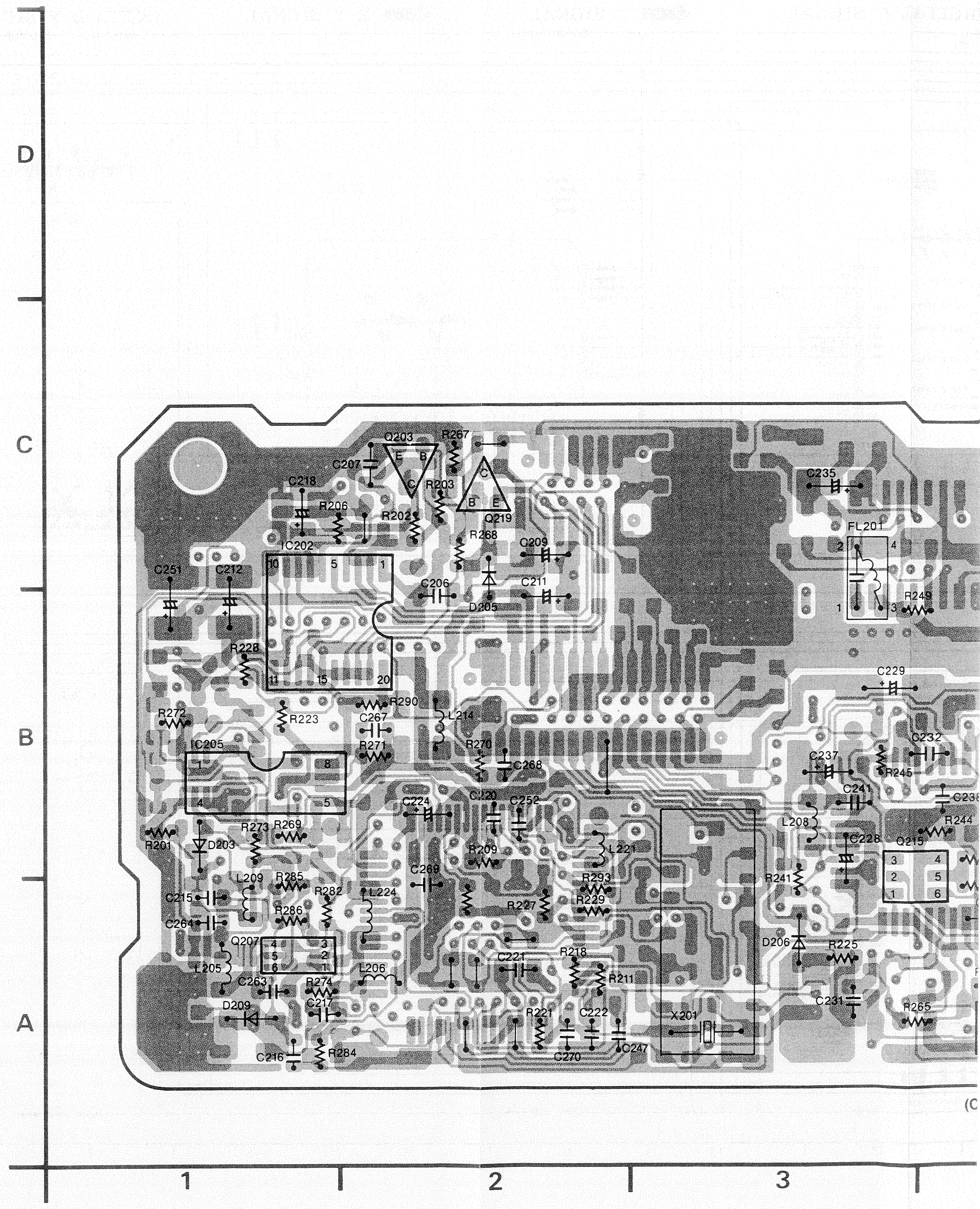
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

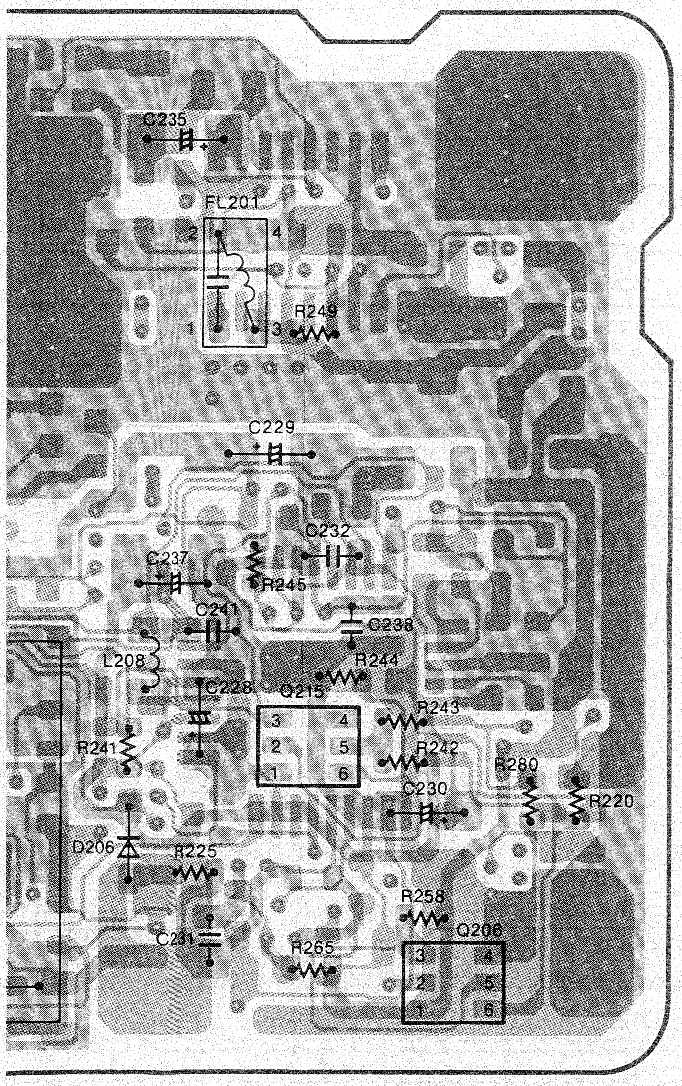
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

IC204
AN2033FAP
AN2032FAP


24
23
22
21
20
19
18
17
16
25
P. SEPA (CP2C)
P. SEPA (PBLK)
P. SEPA (CPOB)
CLAMP
CPOB
LO-CLIP
G. CONT
26
γ
DL
CLAMP
CP2
15
27
γCONT
CLAMP
CP2
14
28
13
29
CLAMP
CP2
DL
CLAMP
CP2
12
30
DL
G. CONT
11
31
VREF4 1. 8V
VREF2 3. 3V
DC CONT
CP2
G. CONT
10
32
VREF1 1. 3V
VREF3
CLAMP
CP2
9
P. SEPA (CP2D)
1
2
3
4
5
6
7
8

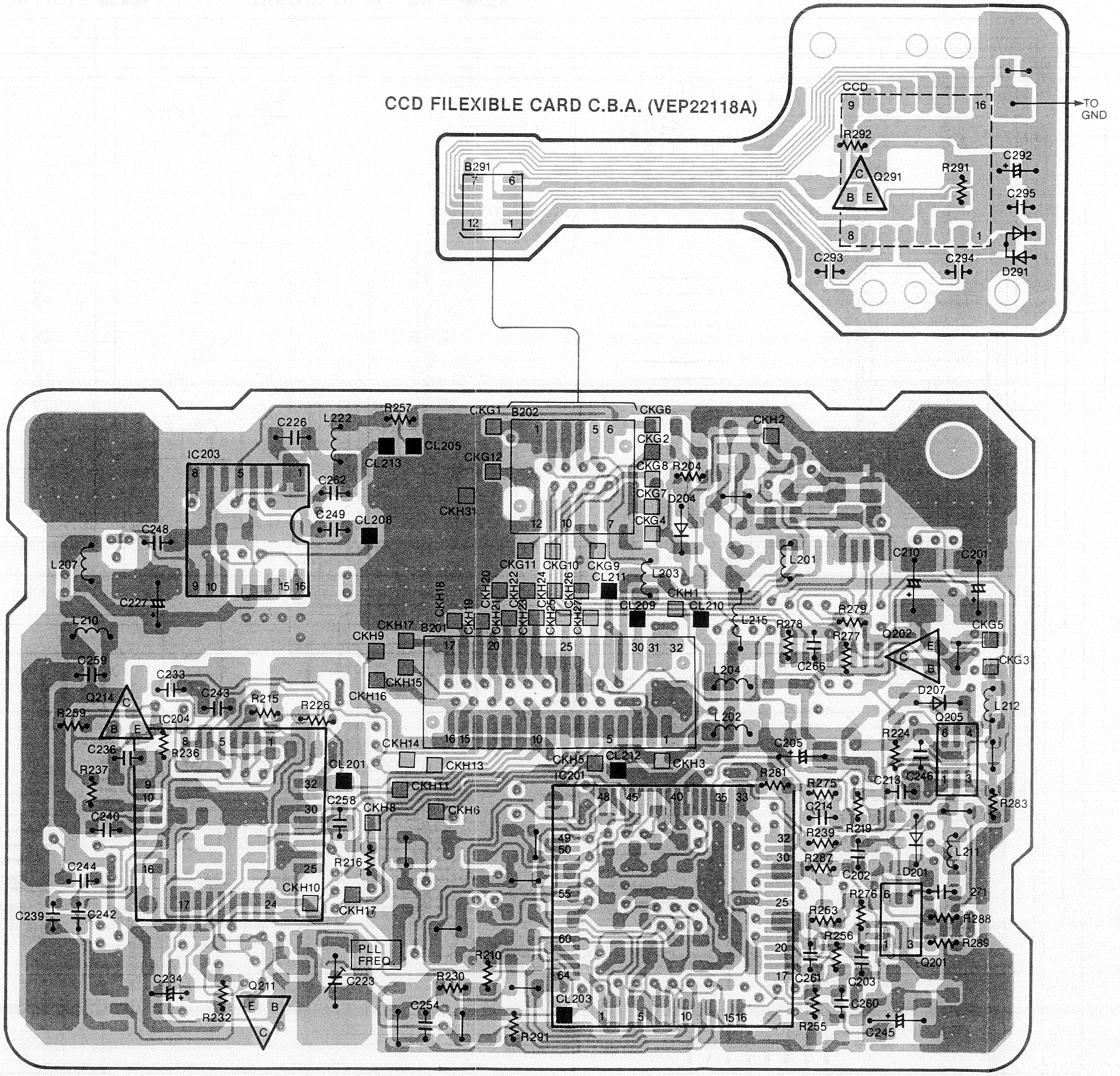
4. CCD DRIVE C.B.A. (VEP22117C)


D
C
B
A
1
2
3
Q203
R267
C207
E
B
C
R203
Q219
C218
R206
R202
R268
Q209
IC202
10
5
1
11
15
20
C251
C212
C206
D205
C211
R228
R290
L214
R272
R223
C267
R271
R270
C268
IC205
8
4
5
C224
C220
C252
R201
D203
R273
R269
R209
L221
L209
R285
R282
L224
C269
R293
R229
C215
R286
R227
C264
Q207
6
L205
C263
R274
C217
L206
C221
R218
R211
D209
R221
C222
C216
R284
C270
C247
X201
C235
FL201
R249
C229
C232
C237
R245
C241
C238
L208
R244
C228
Q215
R241
D206
R225
C231
R265


C235
FL201
R249
C229
C237
R245
C232
C238
C241
R244
L208
C228
Q215
R243
R242
R241
C230
R280
R220
D206
R225
R258
C231
R265
Q206

(COMPONENT SIDE)

CCD FILEXIBLE CARD C.B.A. (VEP22118A)

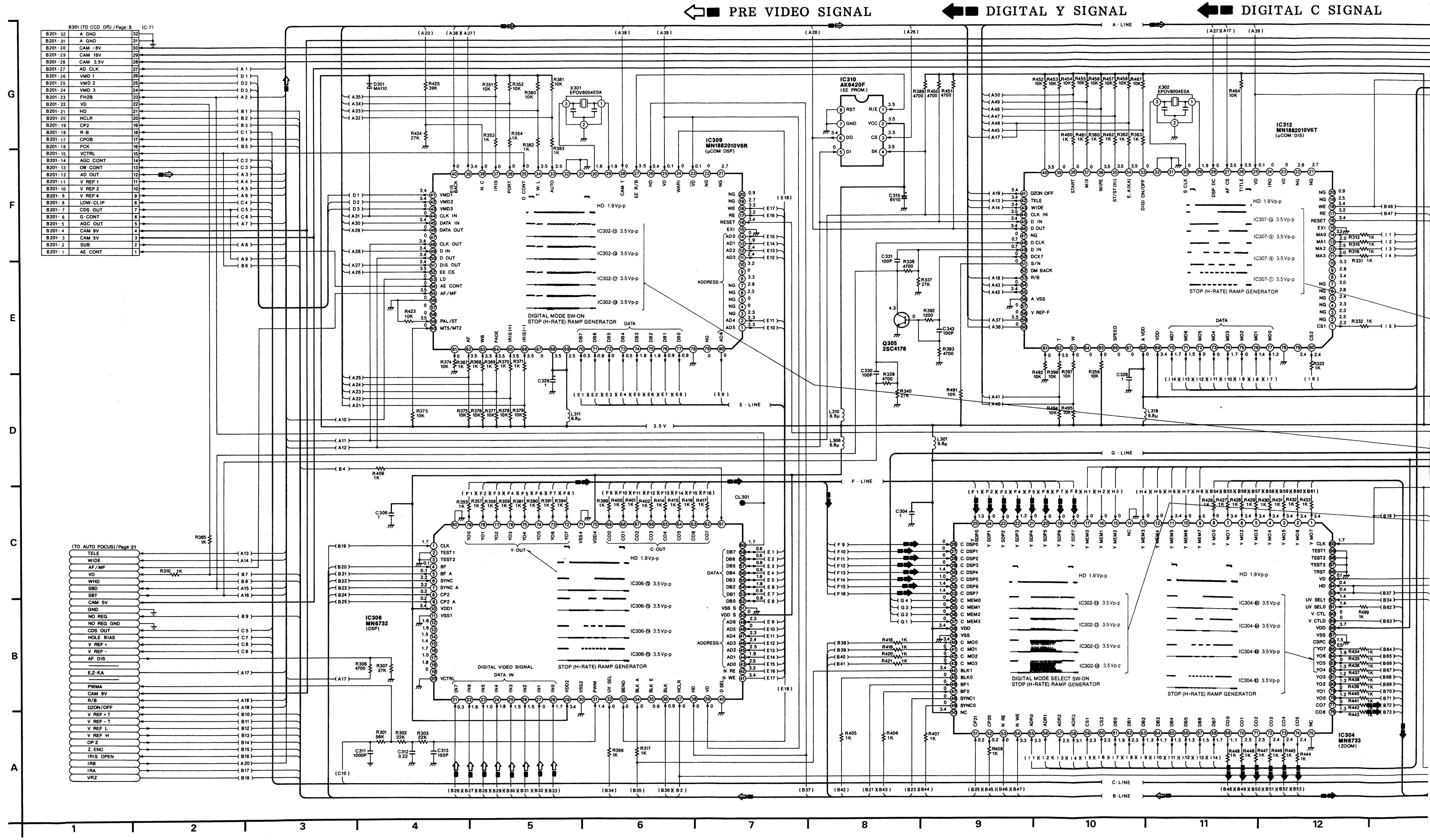

CCD
TO GND
B291
R292
Q291
R291
C292
C295
C293
C294
D291
IC203
C226
L222
R257
CL205
CL213
CKG1
B202
CKG6
CKG2
CKG12
CKG8
R204
CKG7
D204
CKG4
CKH2
C262
C249
CL208
CKH31
C248
L207
C227
L210
C259
C233
Q214
C243
R215
R226
R259
IC204
C236
R236
R237
C240
C244
C239
C242
CL201
C258
CKH8
R216
CKH10
CKH17
PLL FREQ.
C223
C234
Q211
R232
R230
R210
C254
R291
CKG11
CKG10
CKG9
CL211
L203
CKH1
CL209
CL210
CKH18
CKH19
CKH20
CKH21
CKH22
CKH23
CKH24
CKH25
CKH26
CKH27
CKH17
B201
CKH9
CKH15
CKH16
CKH14
CKH13
CKH11
CKH6
CKH5
CL212
CKH3
IC201
CL203
L215
L204
L202
L201
R278
R279
R277
C266
Q202
C210
C201
CKG5
CKG3
D207
L212
Q205
R224
C205
R281
R275
C213
C246
R283
C214
R239
R219
R287
C202
L211
D201
R276
R263
R288
R256
R285
Q201
C261
C203
C260
R255
C245
(FOIL SIDE)

CCD DRIVE C.B.A.	
Transistor	
Q201	A-8
Q202	B-8
Q203	C-2
Q205	B-8
Q206	B-1
Q207	A-1
Q214	B-5
Q215	A-3
Q219	C-2
Integrated Circuit	
IC201	B-7
IC202	C-1
IC203	C-5
IC204	B-5
IC205	B-1
Test Point	
CL201	B-6
CL203	A-7
CL205	C-6
CL208	C-6
CL209	B-7
CL210	B-7
CL211	B-7
CL212	B-7
CL213	C-6
Adjustment	
C223	A-6
Connector	
B201	B-6
B202	C-7

ADDRESS INFORMATION

3 4 5 6 7 8

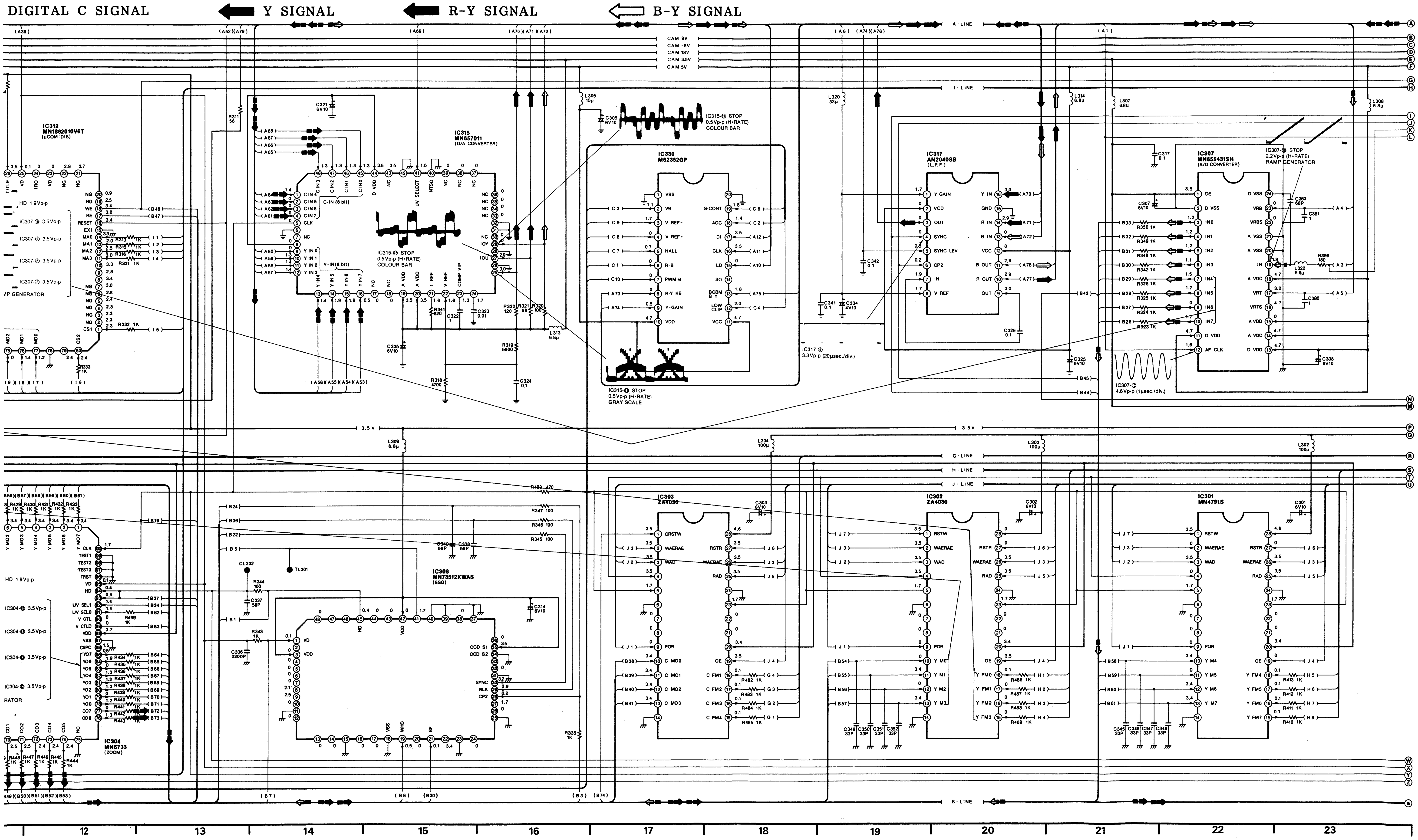
5. PROCESS & CAMERA OPERATION SCHEMATIC DIAGRAM

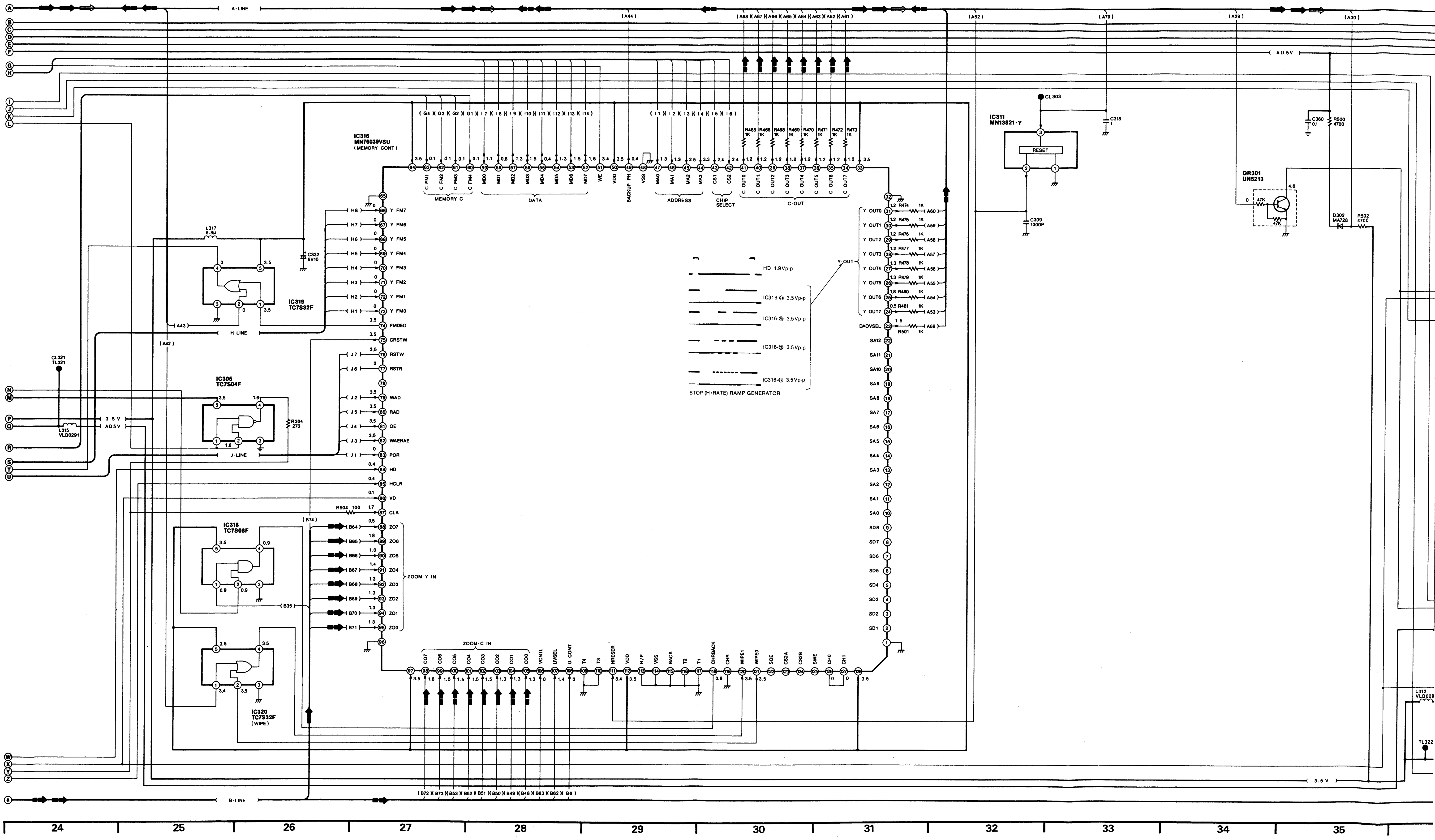


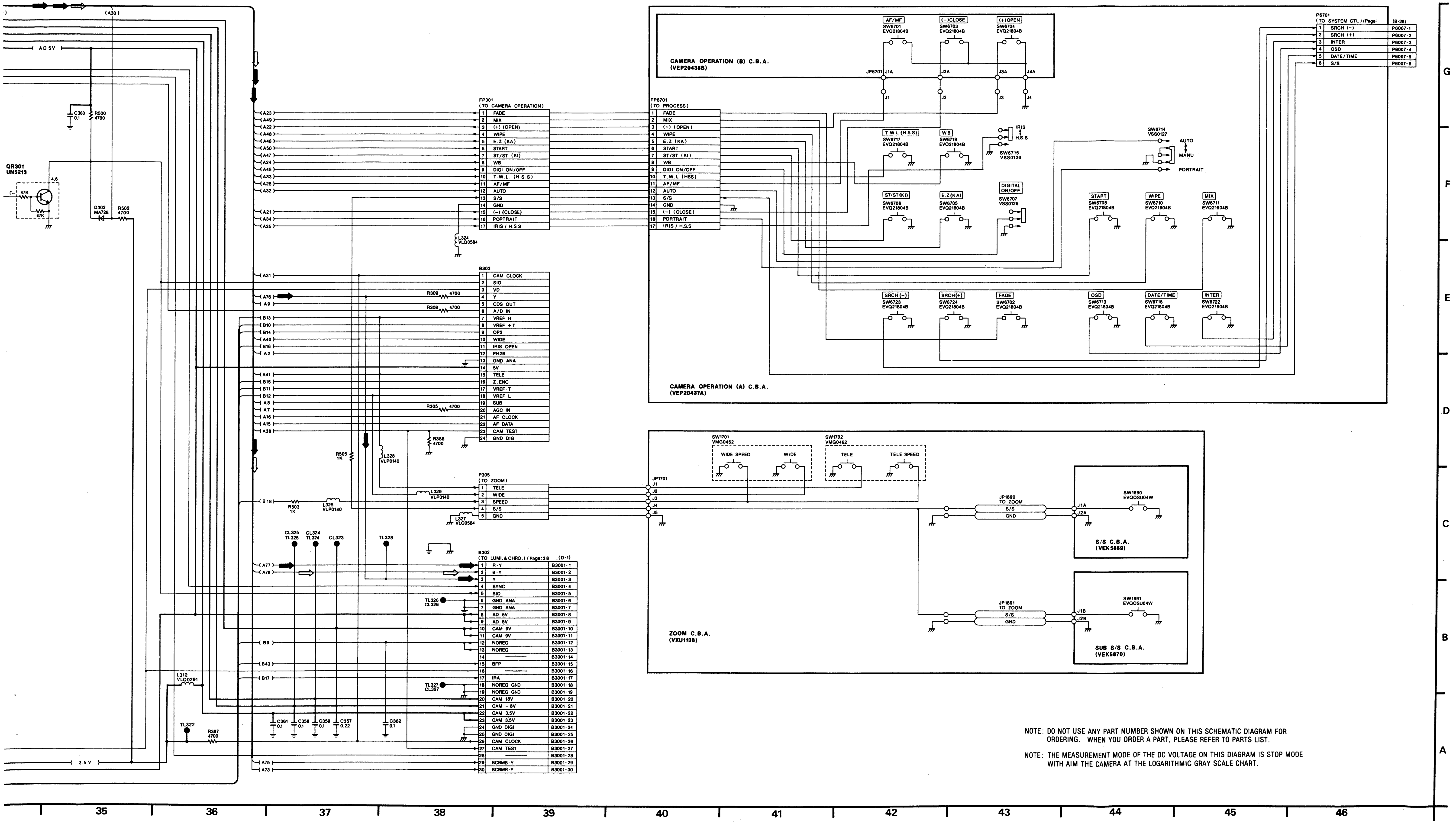
PRE VIDEO SIGNAL
DIGITAL Y SIGNAL
DIGITAL C SIGNAL
B301 (TO CCD DR) / Page: 5 (C-7)
B201-32 A GND
B201-31 A GND
B201-30 CAM -8V
B201-29 CAM 18V
B201-28 CAM 3.5V
B201-27 AD CLK
B201-26 VMD 1
B201-25 VMD 2
B201-24 VMD 3
B201-23 FH2B
B201-22 VD
B201-21 HD
B201-20 HCLR
B201-19 CP2
B201-18 R-B
B201-17 CPOB
B201-16 FCK
B201-15 VCTRL
B201-14 AGC CONT
B201-13 OB CONT
B201-12 AD OUT
B201-11 V REF 1
B201-10 V REF 2
B201-9 V REF 4
B201-8 LOW-CLIP
B201-7 CDS OUT
B201-6 G-CONT
B201-5 AGC OUT
B201-4 CAM 9V
B201-3 CAM 5V
B201-2 SUB
B201-1 AE CONT
(TO AUTO FOCUS) / Page: 21
TELE
WIDE
AF/MF
VD
WHD
SBD
SBT
CAM 5V
GND
NO REG
NO REG GND
CDS OUT
HOLE BIAS
V REF +
V REF -
AF DIS
EZ-KA
PWMA
CAM 9V
R/B
DZON/OFF
V REF + T
V REF - T
V REF L
V REF H
OP 2
Z. ENC
IRIS OPEN
IRB
IRA
VRZ
D301 MA110
X301 EFOV8004E0A
IC309 MN1882010V6R (μCOM: DSP)
DIGITAL MODE SW-ON STOP (H-RATE) RAMP GENERATOR
HD 1.9Vp-p
IC302-⑮ 3.5Vp-p
IC310 AK6420F (EE PROM.)
Q305 2SC4178
X302 EFOV8004E0A
IC312 MN1882010V6T (μCOM: DIS)
STOP (H-RATE) RAMP GENERATOR
IC307 3.5Vp-p
IC306 MN6732 (DSP)
DIGITAL VIDEO SIGNAL
DATA IN
Y-OUT
C-OUT
IC306 3.5Vp-p
CL301
IC304 MN6733 (ZOOM)
DIGITAL MODE SELECT SW-ON STOP (H-RATE) RAMP GENERATOR
IC302 3.5Vp-p
IC304 3.5Vp-p
A-LINE
E-LINE
3.5 V
G-LINE
F-LINE
C-LINE
B-LINE
L310 6.8μ
L306 6.8μ
L301 6.8μ
L311 6.8μ
L316 6.8μ
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10
11
12

Back Page:
CCD DRIVE Section

DIGITAL C SIGNAL


Y SIGNAL
R-Y SIGNAL
B-Y SIGNAL
A-LINE
I-LINE
B-LINE
G-LINE
H-LINE
J-LINE
CAM 9V
CAM -8V
CAM 18V
CAM 3.5V
CAM 5V
3.5V
IC312
MN1882010V6T
(μCOM:DIS)
IC315
MN657011
(D/A CONVERTER)
IC315-⑳ STOP
0.5Vp-p (H-RATE)
COLOUR BAR
IC315-㉗ STOP
0.5Vp-p (H-RATE)
COLOUR BAR
IC315-㉖ STOP
0.5Vp-p (H-RATE)
GRAY SCALE
IC330
M62352GP
IC317
AN2040SB
(L.P.F.)
IC317-④
3.3Vp-p (20μsec./div.)
IC307
MN655431SH
(A/D CONVERTER)
IC307-⑲ STOP
2.2Vp-p (H-RATE)
RAMP GENERATOR
IC307-⑫
4.6Vp-p (1μsec./div.)
IC303
ZA4030
IC302
ZA4030
IC301
MN4791S
IC308
MN73512XWAS
(SSG)
IC304
MN6733
(ZOOM)
HD 1.9Vp-p
IC307-⑬ 3.5Vp-p
IC307-⑭ 3.5Vp-p
IC307-⑮ 3.5Vp-p
IC307-⑦ 3.5Vp-p
IC304-⑪ 3.5Vp-p
IC304-⑫ 3.5Vp-p
IC304-⑬ 3.5Vp-p
IC304-⑭ 3.5Vp-p
CL302
TL301
12
13
14
15
16
17
18
19
20
21
22
23

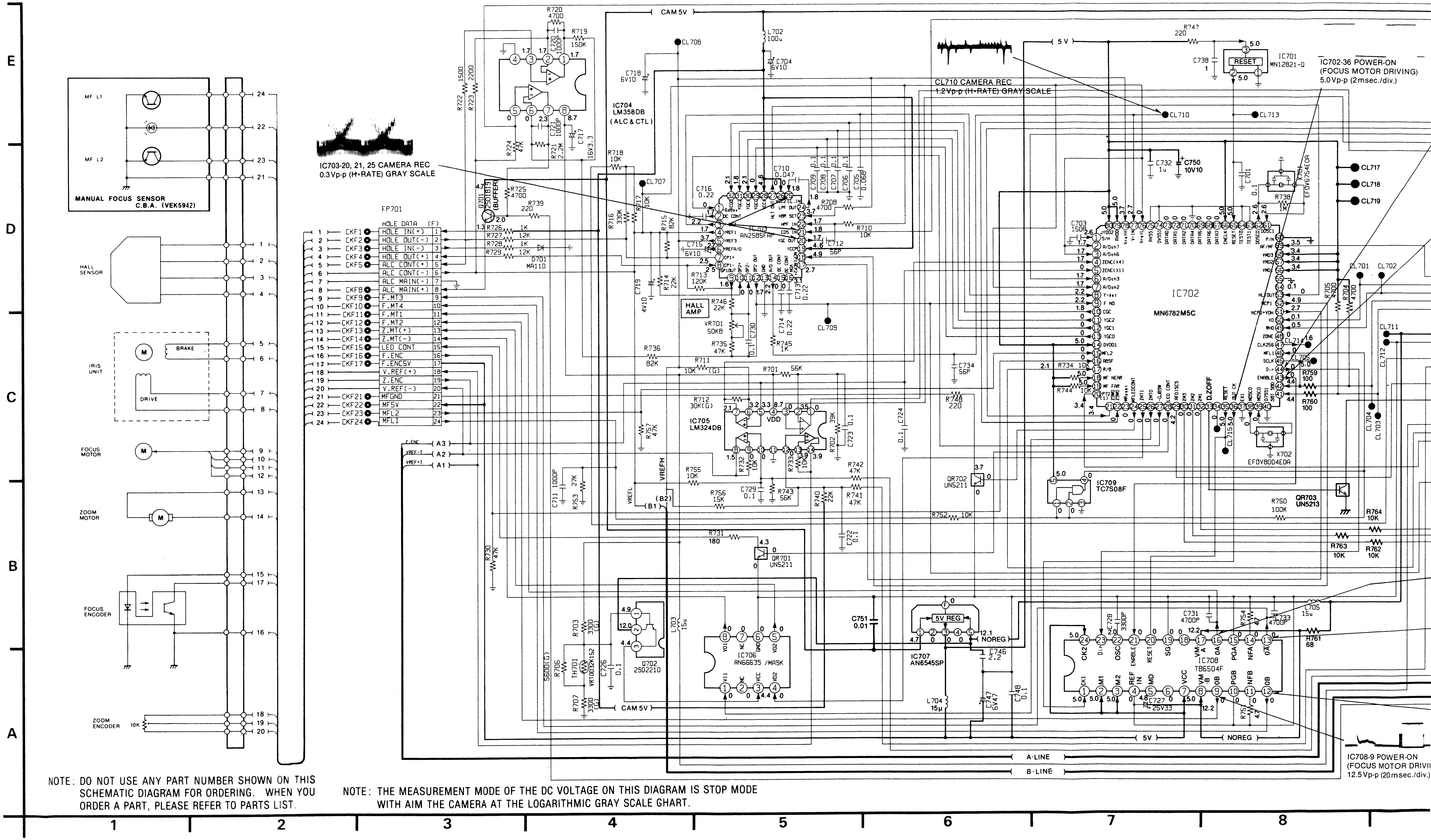

A-LINE
H-LINE
J-LINE
B-LINE
IC316
MN76039VSU
(MEMORY CONT)
IC319
TC7S32F
IC305
TC7S04F
IC318
TC7S08F
IC320
TC7S32F
(WIPE)
IC311
MN13821-Y
RESET
QR301
UN5213
L317
6.8μ
C332
6V10
L315
VLQ0291
R304
270
CL321
TL321
CL303
C318
C309
1000P
C360
0.1
R500
4700
D302
MA728
R502
4700
L312
VLQ029
TL322
R504 100
R501 1K
MEMORY-C
DATA
ADDRESS
CHIP SELECT
C-OUT
Y-OUT
ZOOM-Y IN
ZOOM-C IN
3.5 V
AD 5V
HD 1.9Vp-p
IC316-㉟ 3.5Vp-p
IC316-⑮ 3.5Vp-p
IC316-⑯ 3.5Vp-p
IC316-⑰ 3.5Vp-p
STOP (H-RATE) RAMP GENERATOR
Y FM7
Y FM6
Y FM5
Y FM4
Y FM3
Y FM2
Y FM1
Y FM0
FMDEO
CRSTW
RSTW
RSTR
WAD
RAD
OE
WAERAE
POR
HD
HCLR
VD
CLK
ZO7
ZO6
ZO5
ZO4
ZO3
ZO2
ZO1
ZO0
C FM1
C FM2
C FM3
C FM4
MD0
MD1
MD2
MD3
MD4
MD5
MD6
MD7
WE
VDD
BACKUP PH
VSS
MA0
MA1
MA2
MA3
CS1
CS2
C OUT0
C OUT1
C OUT2
C OUT3
C OUT4
C OUT5
C OUT6
C OUT7
Y OUT0
Y OUT1
Y OUT2
Y OUT3
Y OUT4
Y OUT5
Y OUT6
Y OUT7
DAOVSEL
SA12
SA11
SA10
SA9
SA8
SA7
SA6
SA5
SA4
SA3
SA2
SA1
SA0
SD8
SD7
SD6
SD5
SD4
SD3
SD2
SD1
CO7
CO6
CO5
CO4
CO3
CO2
CO1
CO0
VCNTL
UVSEL
G CONT
T4
T3
NRESER
N/P
BACK
T2
T1
CHRBACK
CHR
WIPE1
WIPE0
SOE
CS2A
CS2B
SWE
CH0
CH1
R465 R466 R468 R469 R470 R471 R472 R473 1K
R474 R475 R476 R477 R478 R479 R480 R481 1K
(G4)(G3)(G2)(G1)(I7)(I8)(I9)(I10)(I11)(I12)(I13)(I14)
(I1)(I2)(I3)(I4)(I5)(I6)
(A44)
(A68)(A67)(A66)(A65)(A64)(A63)(A62)(A61)
(A52)
(A79)
(A29)
(A30)
(A60)(A59)(A58)(A57)(A56)(A55)(A54)(A53)(A69)
(A43)
(A42)
(B74)
(B64)(B65)(B66)(B67)(B68)(B69)(B70)(B71)
(B35)
(B72)(B73)(B53)(B52)(B51)(B50)(B49)(B48)(B63)(B62)(B6)
(H8)(H7)(H6)(H5)(H4)(H3)(H2)(H1)
(J7)(J6)(J2)(J5)(J4)(J3)(J1)
A B C D E F G H I J K L N M P Q R S T U W X Y Z a
24 25 26 27 28 29 30 31 32 33 34 35


CAMERA OPERATION (B) C.B.A.
(VEP20438B)
CAMERA OPERATION (A) C.B.A.
(VEP20437A)
ZOOM C.B.A.
(VXU1138)
S/S C.B.A.
(VEK5869)
SUB S/S C.B.A.
(VEK5870)
FP301
(TO CAMERA OPERATION)
FP6701
(TO PROCESS)
1 FADE
2 MIX
3 (+) (OPEN)
4 WIPE
5 E.Z (KA)
6 START
7 ST/ST (KI)
8 WB
9 DIGI ON/OFF
10 T.W.L (H.S.S)
11 AF/MF
12 AUTO
13 S/S
14 GND
15 (−) (CLOSE)
16 PORTRAIT
17 IRIS / H.S.S
B303
1 CAM CLOCK
2 SIO
3 VD
4 Y
5 CDS OUT
6 A/D IN
7 VREF H
8 VREF +T
9 OP2
10 WIDE
11 IRIS OPEN
12 FH2B
13 GND ANA
14 5V
15 TELE
16 Z.ENC
17 VREF-T
18 VREF L
19 SUB
20 AGC IN
21 AF CLOCK
22 AF DATA
23 CAM TEST
24 GND DIG
P305
(TO ZOOM)
1 TELE
2 WIDE
3 SPEED
4 S/S
5 GND
B302
(TO LUMI.&CHRO.)/Page:38 (D-1)
1 R-Y B3001-1
2 B-Y B3001-2
3 Y B3001-3
4 SYNC B3001-4
5 SIO B3001-5
6 GND ANA B3001-6
7 GND ANA B3001-7
8 AD 5V B3001-8
9 AD 5V B3001-9
10 CAM 9V B3001-10
11 CAM 9V B3001-11
12 NOREG B3001-12
13 NOREG B3001-13
14 B3001-14
15 BFP B3001-15
16 B3001-16
17 IRA B3001-17
18 NOREG GND B3001-18
19 NOREG GND B3001-19
20 CAM 18V B3001-20
21 CAM −8V B3001-21
22 CAM 3.5V B3001-22
23 CAM 3.5V B3001-23
24 GND DIGI B3001-24
25 GND DIGI B3001-25
26 CAM CLOCK B3001-26
27 CAM TEST B3001-27
28 B3001-28
29 BCBMB-Y B3001-29
30 BCBMR-Y B3001-30
P6701
(TO SYSTEM CTL)/Page: (B-26)
1 SRCH (−) P6007-1
2 SRCH (+) P6007-2
3 INTER P6007-3
4 OSD P6007-4
5 DATE/TIME P6007-5
6 S/S P6007-6
AF/MF SW6701 EVQ21804B
(−)CLOSE SW6703 EVQ21804B
(+)OPEN SW6704 EVQ21804B
JP6701 J1A J2A J3A J4A
J1 J2 J3 J4
T.W.L (H.S.S) SW6717 EVQ21804B
WB SW6719 EVQ21804B
IRIS H.S.S SW6715 VSS0126
SW6714 VSS0127
AUTO
MANU
PORTRAIT
ST/ST(KI) SW6706 EVQ21804B
E.Z(KA) SW6705 EVQ21804B
DIGITAL ON/OFF SW6707 VSS0126
START SW6708 EVQ21804B
WIPE SW6710 EVQ21804B
MIX SW6711 EVQ21804B
SRCH(−) SW6723 EVQ21804B
SRCH(+) SW6724 EVQ21804B
FADE SW6702 EVQ21804B
OSD SW6713 EVQ21804B
DATE/TIME SW6716 EVQ21804B
INTER SW6722 EVQ21804B
SW1701 VMG0462
WIDE SPEED
WIDE
SW1702 VMG0462
TELE
TELE SPEED
JP1701 J1 J2 J3 J4 J5
JP1890 TO ZOOM
S/S
GND
J1A J2A
SW1890 EVQQSU04W
JP1891 TO ZOOM
S/S
GND
J1B J2B
SW1891 EVQQSU04W
QR301 UN5213
47K
47K
4.6
C360 0.1
R500 4700
D302 MA728
R502 4700
AD 5V
(A30)
(A23) (A49) (A22) (A48) (A46) (A50) (A47) (A24) (A45) (A33) (A25) (A32) (A21) (A34) (A35)
(A31) (A76) (A9) (B13) (B10) (B14) (A40) (B16) (A2) (A41) (B15) (B11) (B12) (A8) (A7) (A16) (A15) (A38)
(B18) (A77) (A78) (B9) (B43) (B17) (A75) (A73)
L324 VLQ0584
R309 4700
R308 4700
R305 4700
R388 4700
R505 1K
L328 VLP0140
L326 VLP0140
R503 1K
L325 VLP0140
L327 VLQ0584
CL325 TL325
CL324 TL324
CL323
TL328
TL326 CL326
TL327 CL327
L312 VLQ0291
TL322
R387 4700
C361 0.1
C358 0.1
C359 0.1
C357 0.22
C362 0.1
3.5 V
G
F
E
D
C
B
A
35
36
37
38
39
40
41
42
43
44
45
46

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

6. AUTO FOCUS SCHEMATIC DIAGRAM

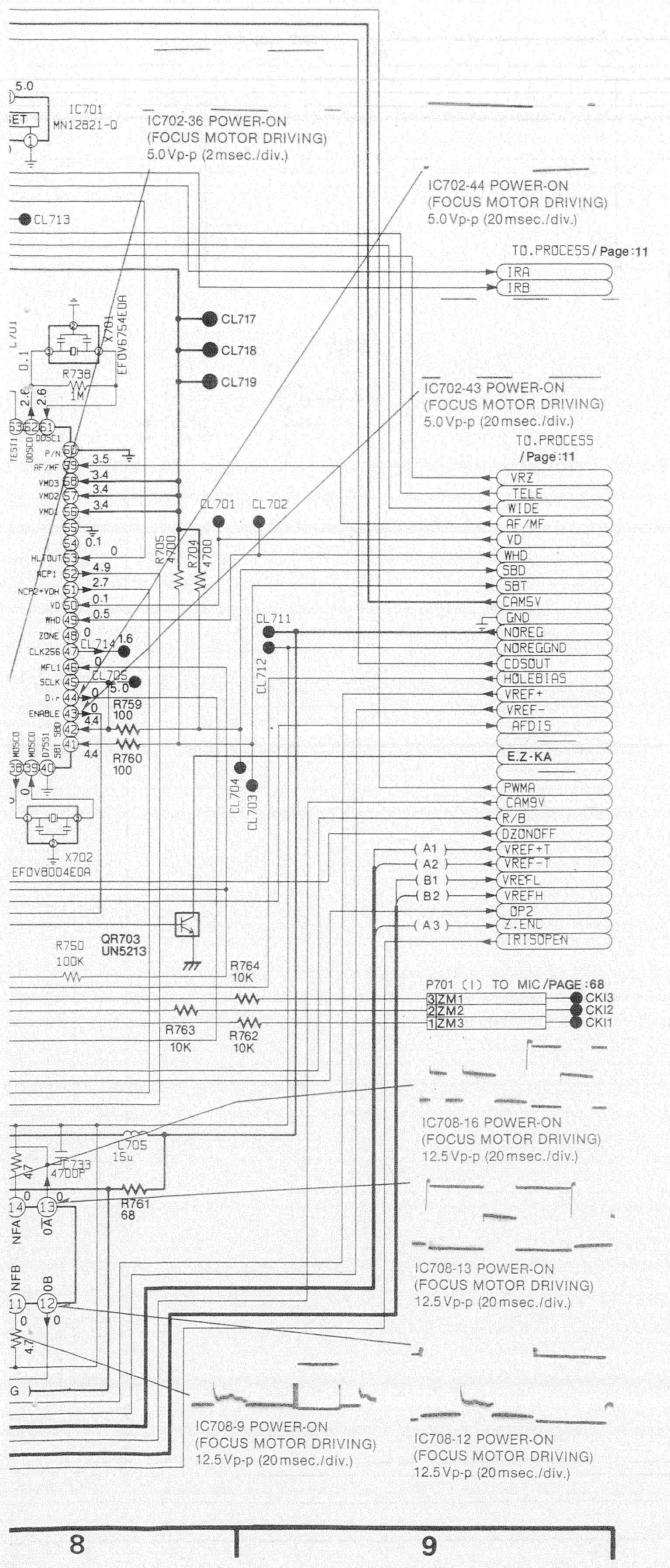

MANUAL FOCUS SENSOR C.B.A. (VEK5942)
MF L1
MF L2
HALL SENSOR
IRIS UNIT
BRAKE
DRIVE
FOCUS MOTOR
ZOOM MOTOR
FOCUS ENCODER
ZOOM ENCODER
FP701
HOLE DATA (F)
IC703-20, 21, 25 CAMERA REC 0.3Vp-p (H-RATE) GRAY SCALE
IC704 LM358DB (ALC & CTL)
IC703 AN2585FAP
HALL AMP
IC705 LM324DB
CAM 5V
CL710 CAMERA REC 1.2Vp-p (H-RATE) GRAY SCALE
IC702 MN6782M5C
IC701 MN12821-Q
RESET
IC702-36 POWER-ON (FOCUS MOTOR DRIVING) 5.0Vp-p (2msec./div.)
X701 EFOV6754E0A
X702 EFOV8004E0A
IC709 TC7S08F
QR702 UN5211
QR701 UN5211
QR703 UN5213
IC706 AN6663S /MASK
Q702 2SD2210
IC707 AN6545SP
5V REG.
NOREG
IC708 TB6504F
IC708-9 POWER-ON (FOCUS MOTOR DRIVING) 12.5Vp-p (20msec./div.)
A-LINE
B-LINE
5V
A B C D E
1 2 3 4 5 6 7 8

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

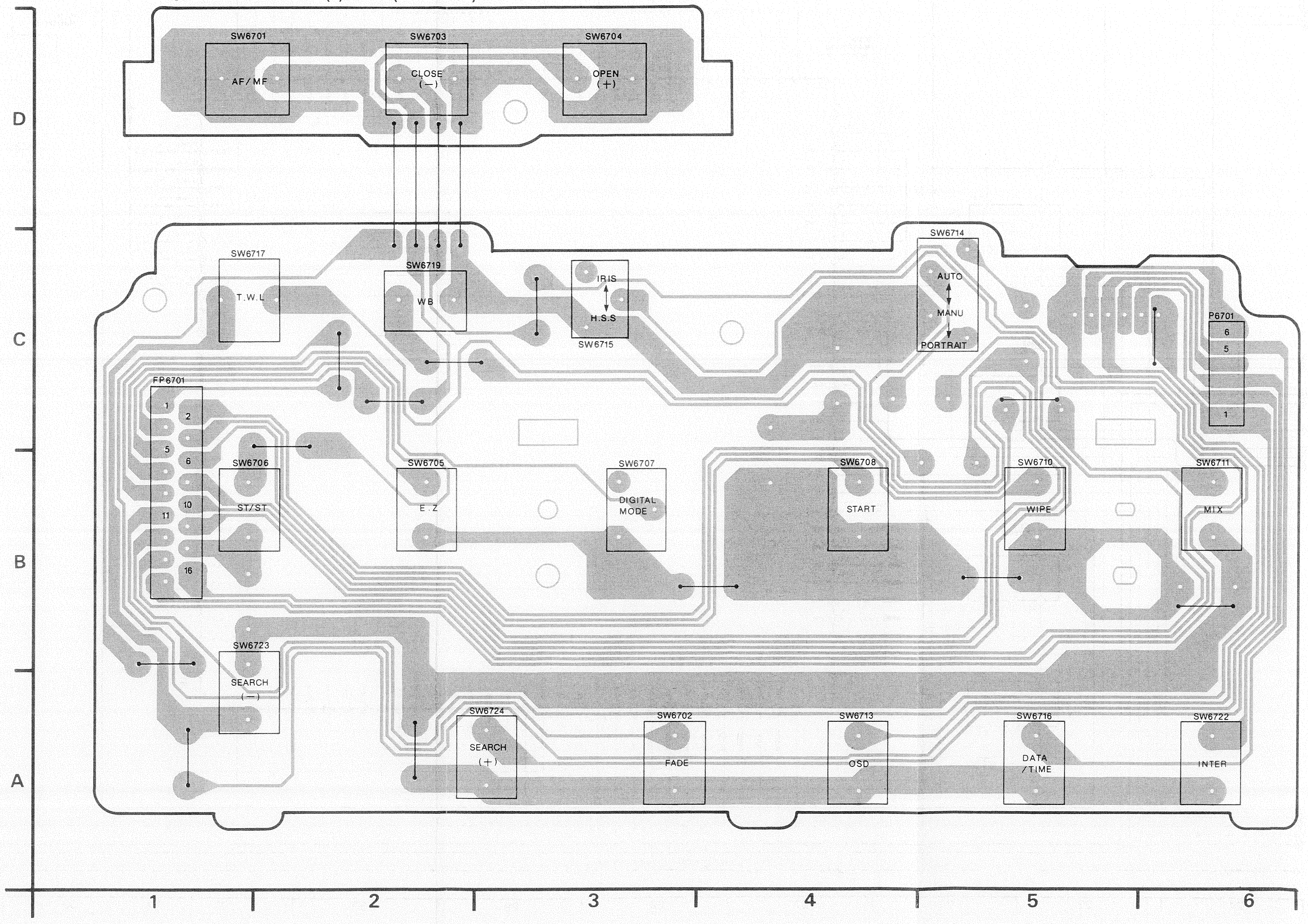
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE GHART.

Back Page:
PROCESS & CAM. OPERATION Section

7. CAMERA OPERATION (A) C.B.A. (VEP20437A)


5.0
IC701
MN12821-Q
IC702-36 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (2msec./div.)
CL713
IC702-44 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)
TO.PROCESS / Page:11
IRA
IRB
CL717
CL718
CL719
R738
1M
EF0V6754E0A
IC702-43 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)
TO.PROCESS
/Page:11
VRZ
TELE
WIDE
AF/MF
VD
WHD
SBD
SBT
CAMSV
GND
NOREG
NOREGGND
CDSOUT
HOLEBIAS
VREF+
VREF-
AFDIS
E.Z-KA
PWMA
CAM9V
R/B
DZONOFF
VREF+T
VREF-T
VREFL
VREFH
OP2
Z.ENC
IRISOPEN
A1
A2
B1
B2
A3
CL701
CL702
CL711
CL712
CL714
CL705
CL704
CL703
R705
4700
R704
4700
R759
100
R760
100
X702
EF0VB004E0A
R750
100K
QR703
UN5213
R764
10K
R763
10K
R762
10K
P701 (1) TO MIC/PAGE:68
ZM1
ZM2
ZM3
CKI3
CKI2
CKI1
IC708-16 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)
L705
15u
C733
4700P
R761
68
IC708-13 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)
IC708-9 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)
IC708-12 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)
8
9

CAMERA OPERATION (B) C.B.A. (VEP20438B)


SW6701
AF/MF
SW6703
CLOSE
(−)
SW6704
OPEN
(+)
D
C
B
A
SW6717
T.W.L
SW6719
WB
IRIS
H.S.S
SW6715
SW6714
AUTO
MANU
PORTRAIT
P6701
6
5
1
FP6701
1
2
5
6
10
11
16
SW6706
ST/ST
SW6705
E.Z
SW6707
DIGITAL
MODE
SW6708
START
SW6710
WIPE
SW6711
MIX
SW6723
SEARCH
(−)
SW6724
SEARCH
(+)
SW6702
FADE
SW6713
OSD
SW6716
DATA
/TIME
SW6722
INTER
1
2
3
4
5
6

PROCESS & AF C.B.A. ADDRESS INFORMATION

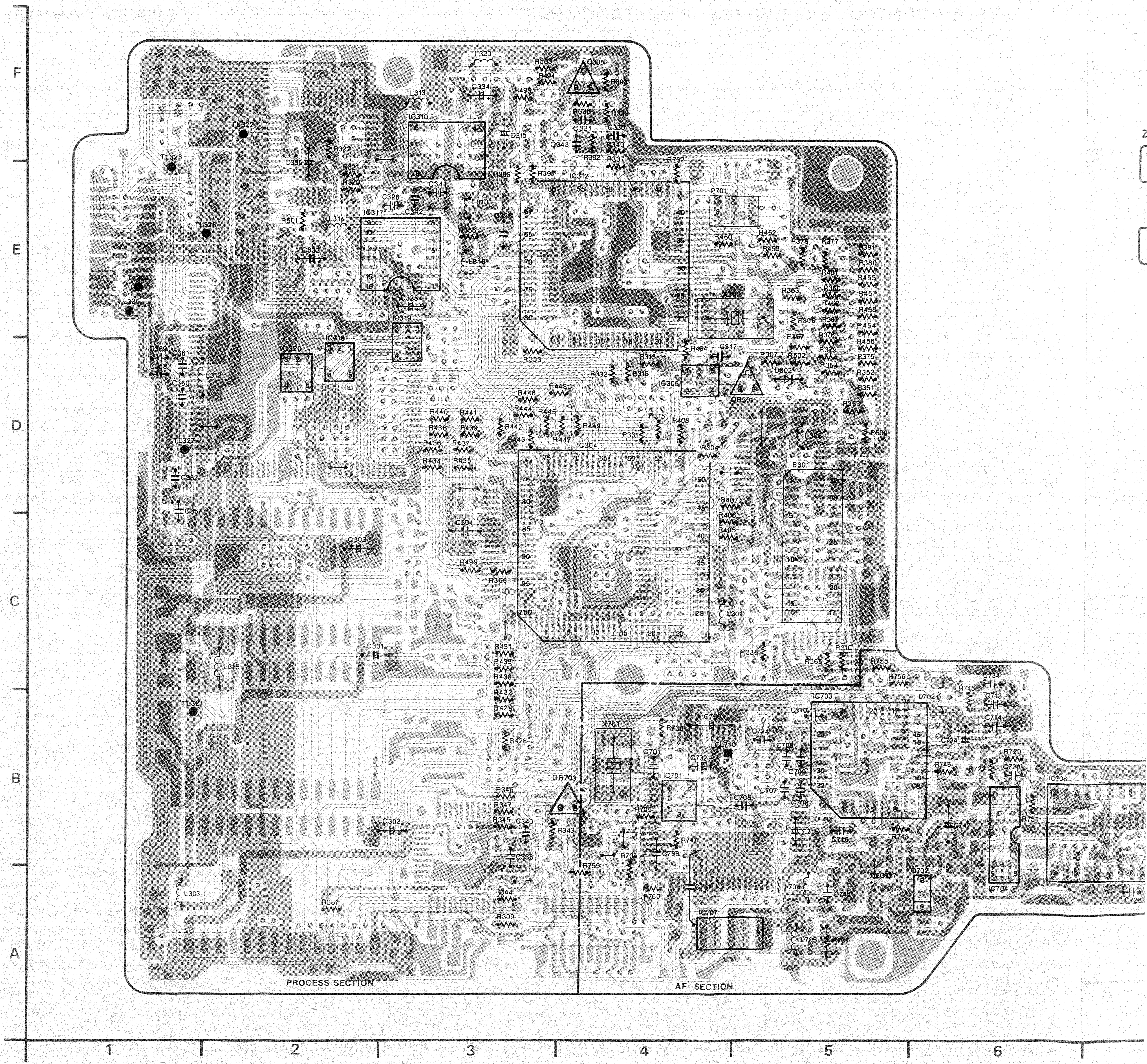
PROCESS Section	
Transistor	
Q305	F-4
Transistor & Resistor	
QR301	D-5
Integrated Circuit	
IC301	C-13
IC302	B-13
IC303	C-14
IC304	D-4
IC305	D-4
IC306	D-12
IC307	D-11
IC308	B-13
IC309	E-12
IC310	F-3
IC311	E-13
IC312	E-4
IC315	F-13
IC316	E-13
IC317	E-2
IC318	D-2
IC319	E-3
IC320	D-2
IC330	C-11
Test Point	
CL301	B-12
CL302	B-12
CL303	E-13
CL321	C-15
CL323	C-15
CL324	D-11
CL325	F-15
CL326	D-15
CL327	D-15
TL301	C-11
TL321	B-1
TL322	F-2
TL324	E-1
TL325	E-1
TL326	E-2
TL327	D-1
TL328	F-1
Connector	
B301	D-5
B302	E-15
B303	A-12
FP301	E-11
P305	F-13

ADDRESS INFORMATION

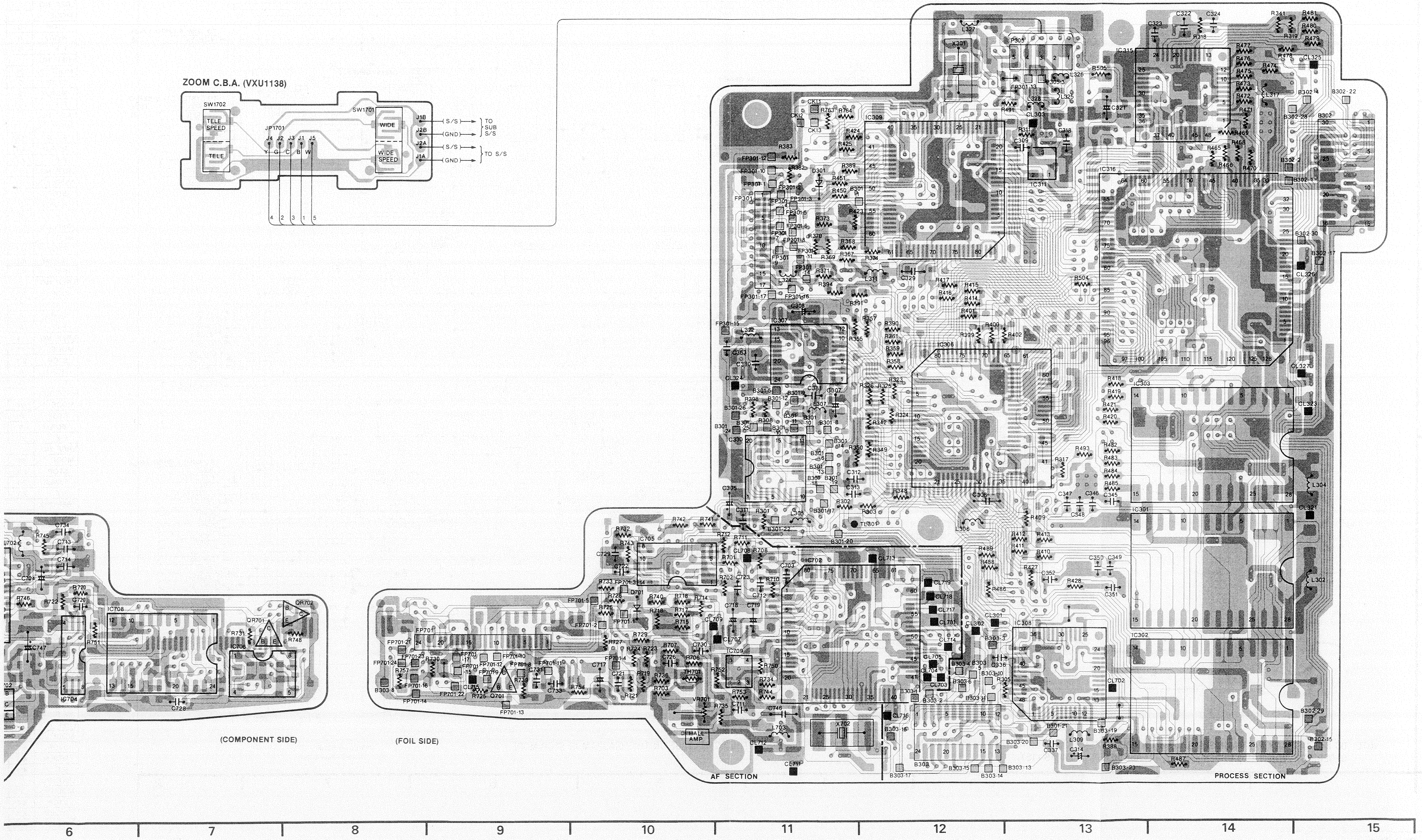
AUTO FOCUS Section	
Transistor	
Q701	A-9
Q702	A-6
Transistor & Resistor	
QR701	B-7
QR702	B-8
Integrated Circuit	
IC701	B-4
IC702	B-11
IC703	B-5
IC704	A-6
IC705	B-10
IC706	B-7
IC707	A-4
IC708	B-6
IC709	B-11
Test Point	
CL701	B-12
CL702	A-13
CL703	A-12
CL704	A-12
CL705	B-12
CL707	B-11
CL708	B-11
CL709	B-10
CL710	B-4
CL711	A-11
CL712	A-11
CL713	B-12
CL714	B-12
CL715	A-9
CL716	A-12
CL717	B-12
CL718	B-12
CL719	B-12
Adjustment	
VR701	A-10
Connector	
FP701	B-9
P701	E-4

ADDRESS INFORMATION

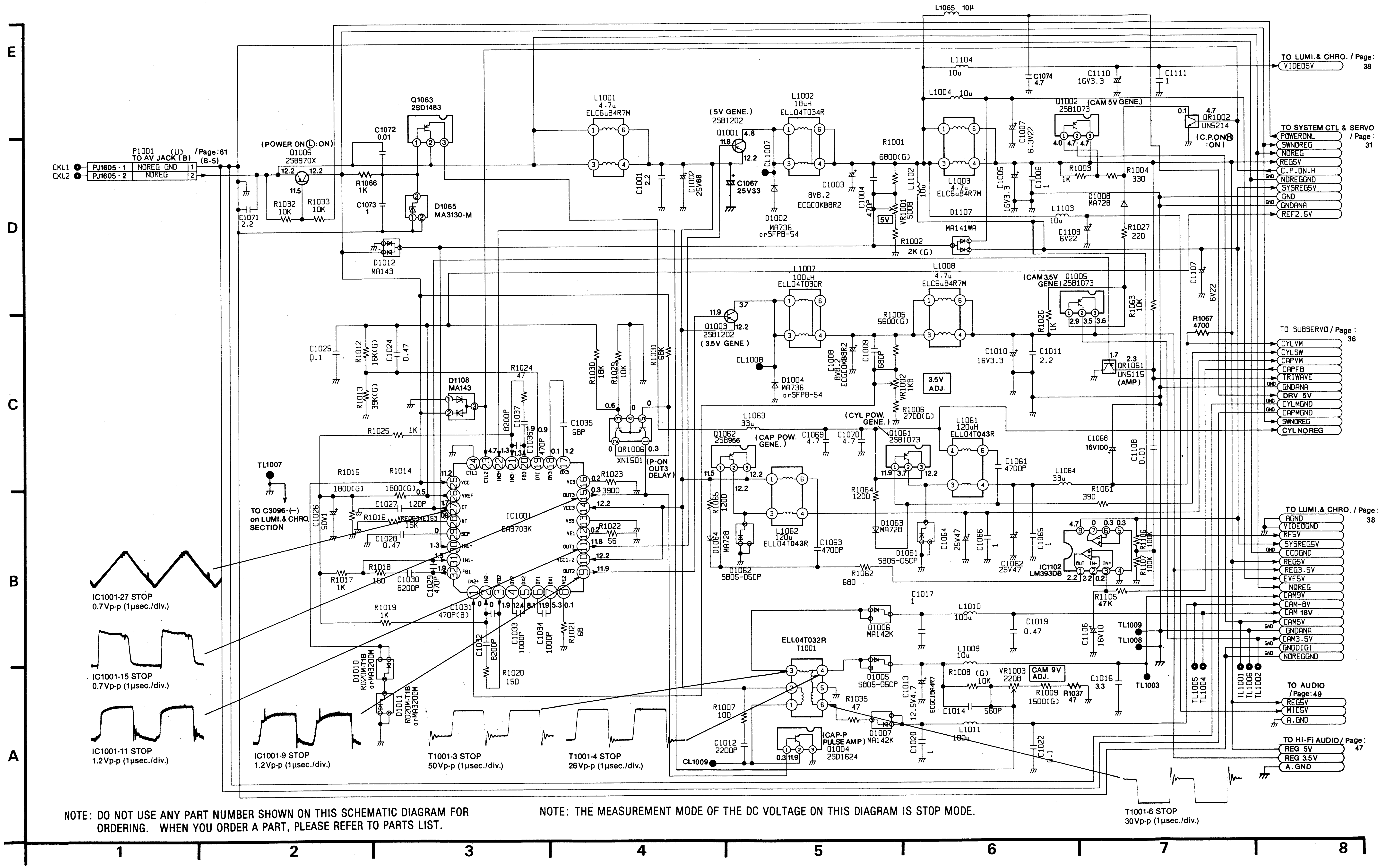
8. PROCESS & AUTO FOCUS C.B.A. (VEP23146H)


F
E
D
C
B
A
1
2
3
4
5
6
PROCESS SECTION
AF SECTION
Q305
L320
L313
IC310
IC312
IC317
IC318
IC319
IC320
IC304
IC305
QR301
X302
P701
B301
TL322
TL328
TL326
TL324
TL325
TL327
TL321
L312
L314
L315
L303
L301
L308
L310
L316
R501
R500
R762
R755
R756
IC703
IC701
IC704
IC707
IC708
X701
QR703
Q702
Q710
CL710
L704
L705
R761
C728

ZOOM C.B.A. (VXU1138)


SW1702
TELE SPEED
TELE
JP1701
J4 J2 J3 J1 J5
Y G C B W
SW1701
WIDE
WIDE SPEED
J1B (S/S)
J2B (GND)
J2A (S/S)
J1A (GND)
TO SUB S/S
TO S/S
(COMPONENT SIDE)
(FOIL SIDE)
AF SECTION
PROCESS SECTION
HALL AMP
IC301
IC302
IC303
IC306
IC307
IC308
IC309
IC311
IC315
IC316
IC330
IC702
IC704
IC705
IC706
IC708
IC709
X301
X702
6
7
8
9
10
11
12
13
14
15

9. POWER SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
8
CKU1
CKU2
PJ1605-1
PJ1605-2
NOREG GND
NOREG
P1001 (U) TO AV JACK (B)
/Page:61 (B-5)
(POWER ON Ⓛ:ON)
Q1006 2SB970X
Q1063 2SD1483
C1072 0.01
R1066 1K
C1073 1
D1065 MA3130-M
R1032 10K
R1033 10K
C1071 2.2
D1012 MA143
L1001 4.7u ELC6uB4R7M
C1001 2.2
C1002 25V68
(5V GENE.) 2SB1202
Q1001
C1067 25V33
CL1007
D1002 MA736 or SFPB-54
L1002 18uH ELL04T034R
C1003 8V8.2 ECGC0KB8R2
C1004 470P
5V
VR1001 500B
R1001 6800(G)
R1002 2K(G)
L1102 10u
L1003 4.7u ELC6uB4R7M
D1107 MA141WA
C1005 16V3.3
C1006 1
C1007 6.3V22
Q1002 (CAM 5V GENE.) 2SB1073
R1003 1K
R1004 330
D1008 MA728
L1103 10u
C1109 6V22
R1027 220
L1104 10u
L1004 10u
L1065 10μ
C1074 4.7
C1110 16V3.3
C1111 1
QR1002 UN5214 (C.P.ON Ⓗ :ON)
TO LUMI.& CHRO. / Page: 38
VIDEO5V
TO SYSTEM CTL & SERVO / Page: 31
POWERONL
SWNOREG
NOREG
REG5V
C.P.ON.H
NOREGGND
SYSREG5V
GND
GNDANA
REF2.5V
L1007 100uH ELL04T030R
Q1003 2SB1202 (3.5V GENE)
CL1008
D1004 MA736 or SFPB-54
C1008 8V8.2 ECGC0KB8R2
C1009 680P
L1008 4.7u ELC6uB4R7M
R1005 5600(G)
VR1002 1K8
3.5V ADJ.
R1006 2700(G)
C1010 16V3.3
C1011 2.2
(CAM3.5V GENE) Q1005 2SB1073
R1026 1K
R1063 10K
R1067 4700
QR1061 UN5115 (AMP)
C1107 6V22
TO SUBSERVO / Page: 36
CYLVM
CYLSW
CAPVM
CAPFB
TRIWAVE
GNDANA
DRV 5V
CYLMGND
CAPMGND
SWNOREG
CYLNOREG
C1025 0.1
R1012 16K(G)
C1024 0.47
R1013 39K(G)
D1108 MA143
R1024 47
R1025 1K
R1030 18K
R1029 10K
R1031 68K
QR1006 XN1501 (P-ON OUT3 DELAY)
C1037
C1036
C1035 68P
IC1001 BA9703K
TL1007
TO C3096-(–) on LUMI.& CHRO. SECTION
R1015
R1014
1800(G)
C1026 50V1
C1027 120P
R1016 15K
C1028 0.47
R1018
R1017 1K
C1030 8200P
C1029 470P
R1019 1K
C1031 470P(B)
C1032 8200P
C1033 1000P
C1034 1000P
R1021 68
R1020 150
R1023 3900
R1022 56
D1010 RD20M-T1B or MA3200M
D1011 RD20M-T1B or MA3200M
L1063 33u
Q1062 2SB956 (CAP POW. GENE.)
C1069 4.7
C1070 4.7
(CYL POW. GENE.) Q1061 2SB1073
L1061 120uH ELL04T043R
C1061 4700P
C1068 16V100
C1108 0.01
L1064 33u
R1061 390
R1065 1200
D1064 MA728
D1062 SB05-05CP
L1062 120u ELL04T043R
C1063 4700P
R1064 1200
D1063 MA728
D1061 SB05-05CP
R1062 680
C1064 25V47
C1066 1
C1062 25V47
C1065 1
IC1102 LM393DB
R1105 47K
TO LUMI.& CHRO. / Page: 38
AGND
VIDEOGND
RF5V
SYSREG5V
CCDGND
REG5V
REG3.5V
EVF5V
NOREG
CAM9V
CAM-8V
CAM 18V
CAM5V
GNDANA
CAM3.5V
GNDDIGI
NOREGGND
C1017 1
D1006 MA142K
L1010 100u
C1019 0.47
C1106 16V10
TL1009
TL1008
ELL04T032R T1001
D1005 SB05-05CP
L1009 10u
R1008 (G) 10K
VR1003 220B
CAM 9V ADJ.
R1009 1500(G)
R1037 47
C1016 3.3
TL1003
C1013 12.5V4.7
ECGC1B4R7
C1014 560P
R1035 47
R1007 100
C1012 2200P
CL1009
Q1004 2SD1624 (CAP-P PULSE AMP)
D1007 MA142K
C1020 1
L1011 100u
C1022 0.1
TL1005
TL1004
TL1001
TL1006
TL1002
TO AUDIO /Page:49
REG5V
MIC5V
A.GND
TO HI-Fi AUDIO/ Page: 47
REG 5V
REG 3.5V
A. GND
IC1001-27 STOP 0.7Vp-p (1μsec./div.)
IC1001-15 STOP 0.7Vp-p (1μsec./div.)
IC1001-11 STOP 1.2Vp-p (1μsec./div.)
IC1001-9 STOP 1.2Vp-p (1μsec./div.)
T1001-3 STOP 50Vp-p (1μsec./div.)
T1001-4 STOP 26Vp-p (1μsec./div.)
T1001-6 STOP 30Vp-p (1μsec./div.)

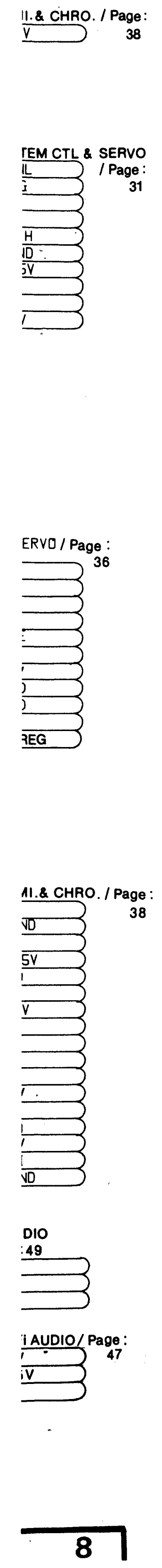
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

SYSTEM C

REF. NO.	
MODE	1
STOP	0
REC/PLAY	0
F.F	0
REF. NO.	
MODE	21
STOP	0
REC/PLAY	0
F.F	0
REF. NO.	
MODE	1
STOP	4.6
REC/PLAY	4.7
F.F	4.7
REF. NO.	
MODE	1
STOP	0
REC/PLAY	0
F.F	0
REF. NO.	
MODE	1
STOP	4.7
REC/PLAY	4.7
F.F	4.7
REF. NO.	
MODE	21
STOP	0
REC/PLAY	0
F.F	0
REF. NO.	
MODE	41
STOP	2.1
REC/PLAY	0
F.F	0
REF. NO.	
MODE	61
STOP	0
REC/PLAY	0
F.F	0
REF. NO.	
MODE	81
STOP	2.1
REC/PLAY	2.1
F.F	2.1
REF. NO.	
MODE	101
STOP	4.6
REC/PLAY	4.6
F.F	4.6
REF. NO.	
MODE	121
STOP	4.7
REC/PLAY	4.7
F.F	4.7
REF. NO.	
MODE	1
STOP	0
REC/PLAY	0
F.F	0
REF. NO.	
MODE	1
STOP	4.7
REC/PLAY	4.7
F.F	4.7
REF. NO.	
MODE	1
STOP	4.3
REC/PLAY	4.3
F.F	4.4
REF. NO.	
MODE	1
STOP	4.7
REC/PLAY	4.7
F.F	4.7

Back Page:
PROCESS & AF Section



SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	0	0	0	0	0	12.2	12.2	0	0	0	0	0	0	0	0	0	0
REC/PLAY	0	0	0	0	0	0	0	0	12.1	12.1	0	0	0	0	0	0.1	0	0	0	0
F.F	0	0	0	0	0	0	0	0	12.0	12.1	0	0	0	0	0	0	0	0	0	0
REF. NO.	IC6001																			
MODE	21	22	23	24																
STOP	0	0	0	0																
REC/PLAY	0	0	0.1	0																
F.F	0	0	0	0																
REF. NO.	IC6002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	4.6	0.1	4.7	4.7	4.7	1.7	1.7	0	0	0	0	0.1	0	0	4.3	3.8				
REC/PLAY	4.7	0.1	4.7	4.7	4.7	1.7	1.7	0	0	0	0	0	0	0	4.3	3.7				
F.F	4.7	0.1	4.7	4.7	4.7	1.7	1.7	0	0	0	0	0	0	0	4.3	3.8				
REF. NO.	IC6003																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	0.8	0	0	0.5	0.8	0	1.8	1.8	4.7	0	0	0	1.8						
REC/PLAY	0	0.8	0	0	0.5	0.8	0	1.8	1.8	4.7	0	0	0	1.8						
F.F	0	0.8	0	0	0.5	0.8	0	1.8	1.8	4.7	0	0	0	1.8						
REF. NO.	IC6004																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	4.7	4.7	4.7	4.7	4.7	4.6	4.7	4.7	0	4.7	0	4.7	4.7	4.7	4.7	4.7	0	0	0	0
REC/PLAY	4.7	4.7	4.7	4.6	4.7	4.6	4.7	4.7	0	0	0	4.7	4.7	4.7	4.7	—	4.7	4.7	4.7	4.2
F.F	4.7	4.6	4.7	4.7	4.7	4.6	4.7	4.7	0	4.7	0	4.7	4.7	3.5	4.7	0	0	0	0	0
REF. NO.	IC6004																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0	1.9	0	4.7	0	0	4.7	0.8	0	0	0	0.1	4.7	0	0	0	—	—	0
REC/PLAY	0	0	1.9	0	4.7	0	0	4.7	0.8	0	0	0	0.1	4.7	0	0	0	—	—	0
F.F	0	0	1.9	0	4.7	0	0	4.7	0.8	0	0	0	0.1	4.7	0	0	0	0.1	4.7	0
REF. NO.	IC6004																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	2.1	0.8	1.0	0	0	0.8	4.7	—	—	4.7	0	4.3	4.6	4.5	4.7	4.7	4.7	2.3	4.6	4.7
REC/PLAY	0	2.1	1.0	0	0	0.8	4.7	—	0.3	—	—	4.4	4.5	4.5	4.7	4.7	4.7	0	4.6	4.7
F.F	0	0.8	1.0	0	0	0.8	4.7	4.7	0	4.7	0	4.4	4.6	4.4	4.7	4.7	4.6	0	4.6	4.7
REF. NO.	IC6004																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	0	4.7	0	4.7	0	0	4.7	2.3	0	4.7	0	0	0	2.4	2.4	2.3	0	2.4	2.4
REC/PLAY	0	0	—	0	—	0	0	4.7	2.3	0	1.3	0	0	0	2.4	2.3	2.3	0	2.4	2.4
F.F	0	0	4.7	0	4.7	0	0	4.7	2.3	0	4.7	0	0	0	2.4	2.4	2.3	0	2.4	2.4
REF. NO.	IC6001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	2.1	2.6	4.7	0	0	0	2.4	2.4	0	0	2.4	0	0	4.1	4.7	0	4.7	4.7	4.7	4.7
REC/PLAY	2.1	2.6	4.7	—	—	0	2.4	2.3	0	0	2.4	0	2.1	2.3	4.7	0	4.6	4.7	4.7	4.6
F.F	2.1	2.6	4.7	0	0	0	2.4	2.4	0	0	2.4	0	1.9	4.1	4.7	0	4.7	4.7	4.7	4.6
REF. NO.	IC6004																			
MODE	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
STOP	4.6	2.9	0	0	4.7	4.7	3.7	2.5	4.3	0	0	0	4.7	4.7	4.5	4.7	4.7	4.7	4.7	4.7
REC/PLAY	4.6	2.9	0	0	4.7	4.7	—	2.5	4.6	—	0	0	4.7	4.7	4.6	4.6	4.7	4.7	4.7	4.7
F.F	4.6	2.9	0	0	4.7	4.7	—	2.5	4.3	0	0	0	4.7	4.7	4.6	4.6	4.7	4.7	4.7	4.7
REF. NO.	IC6004																			
MODE	121	122	123	124	125	126	127	128												
STOP	4.7	4.7	4.7	0	0	4.7	4.7	0												
REC/PLAY	4.7	0	0	0	0	4.7	4.7	0												
F.F	4.7	4.7	4.7	0	0	4.7	4.7	0												
REF. NO.	IC6005																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	4.7	4.7	4.7	4.7	4.7	0	0.5	4.7	4.7	4.7	4.7	0	4.7						
REC/PLAY	0	4.7	4.7	4.7	4.7	4.7	0	0.5	4.7	4.7	4.7	4.7	0	4.7						
F.F	0	4.7	4.7	4.7	4.7	4.7	0	0.5	4.6	4.7	4.6	4.6	0	4.7						
REF. NO.	IC6006																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	4.7	4.7	4.7	4.7	4.7	4.7	0	0	4.7	4.7	4.7	4.7	4.7	4.7						
REC/PLAY	4.7	4.7	4.7	4.7	4.7	4.7	0	0	4.7	4.7	4.7	4.7	4.7	4.7						
F.F	4.7	4.7	4.7	4.7	4.7	4.7	0	0	4.7	4.7	4.7	4.7	4.7	4.7						
REF. NO.	IC607																			
MODE	1	2	3	4	5															
STOP	4.3	4.6	0	0.8	4.7															
REC/PLAY	4.3	4.6	0	0.8	4.7															
F.F	4.4	4.6	0	0.8	4.7															
REF. NO.	IC6008																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	4.7	4.7	4.7	4.7	4.7	4.7	0	4.7	4.7	4.7	4.7	4.7	4.7	4.7						
REC/PLAY	4.7	4.7	4.7	4.7	4.7	4.7	0	4.7	4.7	4.7	4.7	4.7	4.7	4.7						
F.F	4.7	4.6	4.7	4.7	4.6	4.7	0	4.7	4.7	4.7	4.7	4.7	4.7	4.7						

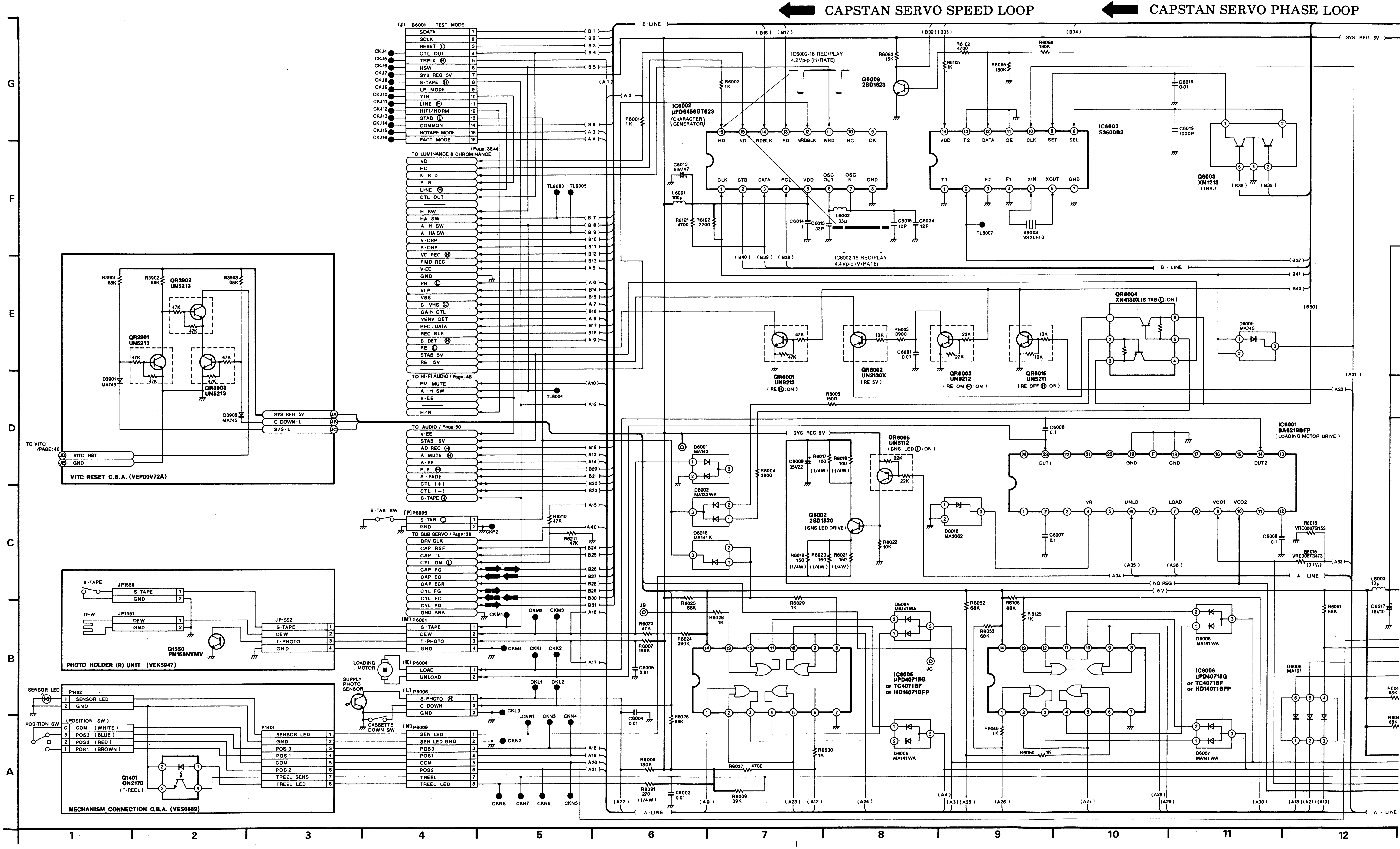
SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART

REF. NO.	IC6009										IC6010									
MODE	1	2	3								1	2	3							
STOP	0	4.7	4.7								5.0	0	12.2							
REC/PLAY	0	4.7	4.7								5.0	0	12.1							
F.F	0	4.7	4.7								5.0	0	12.1							
REF. NO.	IC6011																			
MODE	1	2	3	4	5															
STOP	4.7	4.5	0	4.5	4.7															
REC/PLAY	4.7	4.6	0	4.6	4.7															
F.F	4.6	4.6	0	4.7	4.7															

SYSTEM CONTROL & SERVO TRANSISTORs DC VOLTAGE CHART

REF. NO.	Q6002			Q6003						Q6004			Q6005			Q6006		
MODE	E	C	B	1	2	3	4	5		E	C	B	E	C	B	E	C	B
STOP	0	12.2	0	1.8	1.8	0	0	0		4.7	4.7	4.0	0	0.1	0.7	0	4.6	0.1
REC/PLAY	0	12.1	0	1.8	1.8	0	0	0		4.7	4.7	4.0	0	0.1	0.7	0	4.7	0.1
F.F	1.6	10.9	1.6	1.8	1.8	0	0	0		4.7	4.7	4.0	0	0.1	0.7	0	4.6	0.1
REF. NO.	Q6007			Q6008			Q6009			Q6010			Q6012					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	4.7	0	4.7	3.1	0	0	0	4.9	0	9.8	12.2	10.4	0	4.6	0			
REC/PLAY	4.7	0	4.7	3.1	3.9	0	0	4.7	0.1	9.8	12.0	10.2	0	4.6	0			
F.F	4.7	0	4.7	3.1	4.0	0	0	4.8	0	9.7	12.0	10.2	0	4.6	0			
REF. NO.	QR6001			QR6002			QR6003			QR6004						QR6005		
MODE	E	C	B	E	C	B	E	C	B	1	2	3	4	5	6	E	C	B
STOP	0	0.1	0	4.7	0.1	4.7	0	0	0	4.7	4.0	4.7	4.7	4.1	4.7	4.7	0	4.7
REC/PLAY	0	0	4.4	4.7	1.6	4.7	0	4.7	0.1	4.7	0	4.7	4.6	4.0	4.7	4.7	0	4.7
F.F	0	0	0	4.7	0.1	4.7	0	4.7	0	4.7	4.0	4.7	4.7	4.1	4.7	4.7	1.6	3.8
REF. NO.	QR6006			QR6007			QR6008			QR6010			QR6011			QR6012		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	0	0	0.1	4.5	0	0.1	4.7	4.7	4.6	0	4.7	0	4.7	4.7	0	4.7
REC/PLAY	0	4.7	0	0	0.1	4.3	0	0.1	4.7	4.7	4.6	0	4.7	0	0	4.7	4.7	0
F.F	0	4.7	0	0	0.1	4.3	0	0.1	4.7	4.7	4.6	0	4.7	0	4.7	4.7	0	4.7
REF. NO.	QR6013			QR6014			QR6015			QR6016			QR6017			QR6018		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	12.6	0	0	0	0	0	0	0	0	0	0	0	4.5	0	0	2.1
REC/PLAY	0	0	12.5	0	0	4.7	0	0	4.7	0	0	0	0	0	4.5	0	0	2.1
F.F	0	0	12.4	0	0	0	0	0	0	0	0	0	0	0	4.5	0	0	2.1

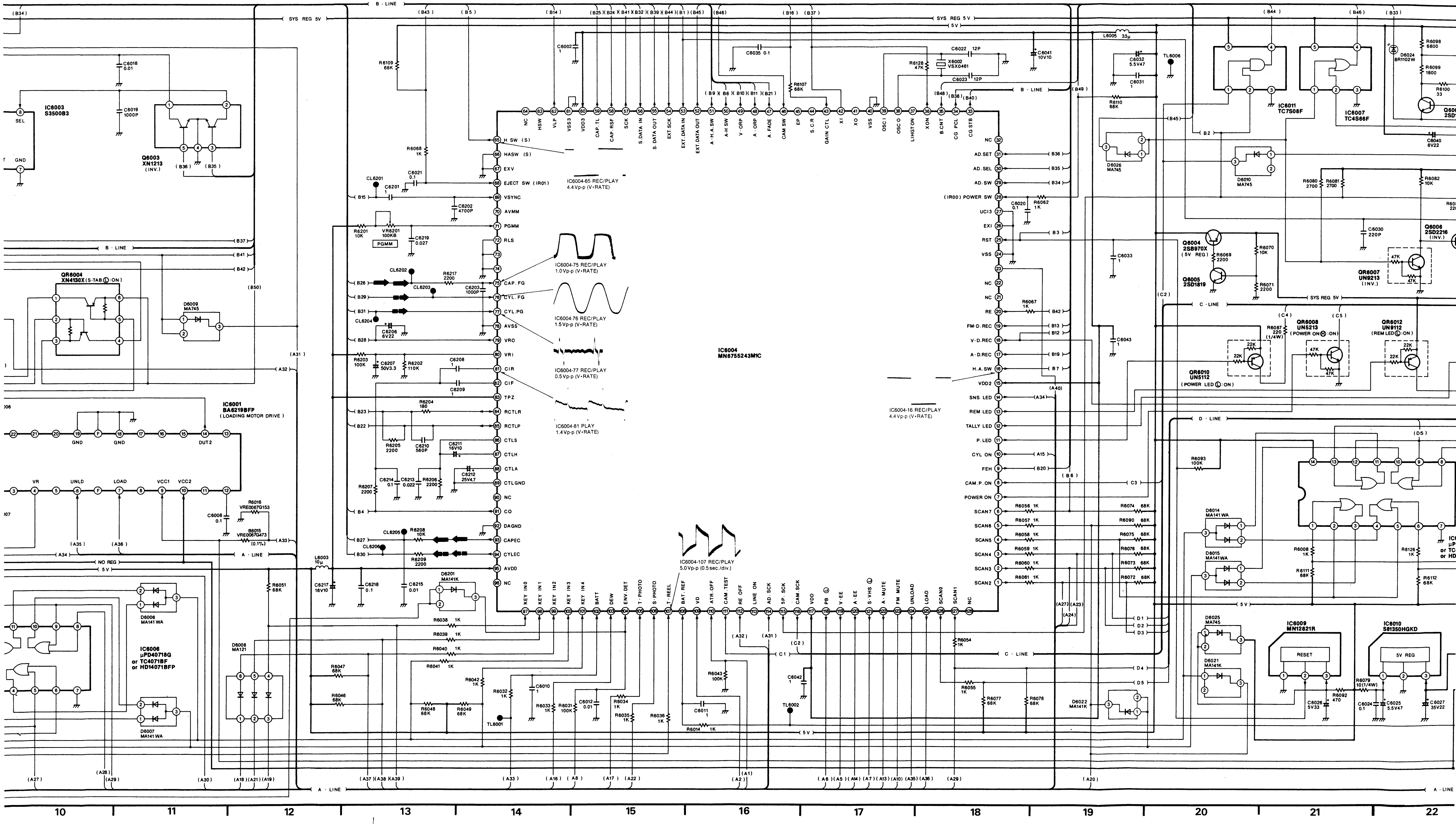
10. SYSTEM CONTROL/SERVO & VITC RESET SCHEMATIC DIAGRAM


CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
(J) B6001 TEST MODE
SDATA
SCLK
RESET Ⓛ
CTL OUT
TRFIX Ⓗ
HSW
SYS REG 5V
S-TAPE Ⓗ
LP MODE
YIN
LINE Ⓗ
HIFI/NORM
STAB Ⓛ
COMMON
NOTAPE MODE
FACT MODE
TO LUMINANCE & CHROMINANCE / Page:38,44
TO HI-Fi AUDIO / Page:46
TO AUDIO / Page:50
TO SUB SERVO / Page:38
S-TAB SW
(P) P6005
IC6002 μPD6456GT623 (CHARACTER GENERATOR)
IC6002-16 REC/PLAY 4.2Vp-p (H-RATE)
IC6002-15 REC/PLAY 4.4Vp-p (V-RATE)
Q6009 2SD1823
IC6003 S3500B3
Q6003 XN1213 (INV.)
QR6004 XN4130X (S-TAB Ⓛ:ON)
QR6001 UN9213 (RE Ⓗ:ON)
QR6002 UN2130X (RE 5V)
QR6003 UN9212 (RE ON Ⓗ:ON)
QR6015 UN5211 (RE OFF Ⓗ:ON)
D6009 MA745
IC6001 BA6219BFP (LOADING MOTOR DRIVE)
QR6005 UN5112 (SNS LED Ⓛ:ON)
Q6002 2SD1820 (SNS LED DRIVE)
D6001 MA143
D6002 MA132WK
D6016 MA141K
D6018 MA3062
IC6005 μPD4071BG or TC4071BF or HD14071BFP
IC6006 μPD40718G or TC4071BF or HD14071BFP
D6004 MA141WA
D6005 MA141WA
D6006 MA141WA
D6007 MA141WA
D6008 MA121
SYS REG 5V
B-LINE
A-LINE
NO REG
5V
QR3902 UN5213
QR3901 UN5213
QR3903 UN5213
D3901 MA745
D3902 MA745
TO VITC /PAGE:46
VITC RST
GND
VITC RESET C.B.A. (VEP00V72A)
S-TAPE
DEW
JP1550
JP1551
JP1552
Q1550 PN158NVMV
PHOTO HOLDER (R) UNIT (VEK5947)
SENSOR LED
P1402
POSITION SW
COM (WHITE)
POS3 (BLUE)
POS2 (RED)
POS1 (BROWN)
P1401
Q1401 ON2170 (T-REEL)
MECHANISM CONNECTION C.B.A. (VES0689)
(M) P6001
LOADING MOTOR
(K) P6004
LOAD
UNLOAD
SUPPLY PHOTO SENSOR
(L) P6006
CASSETTE DOWN SW
(N) P6009
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

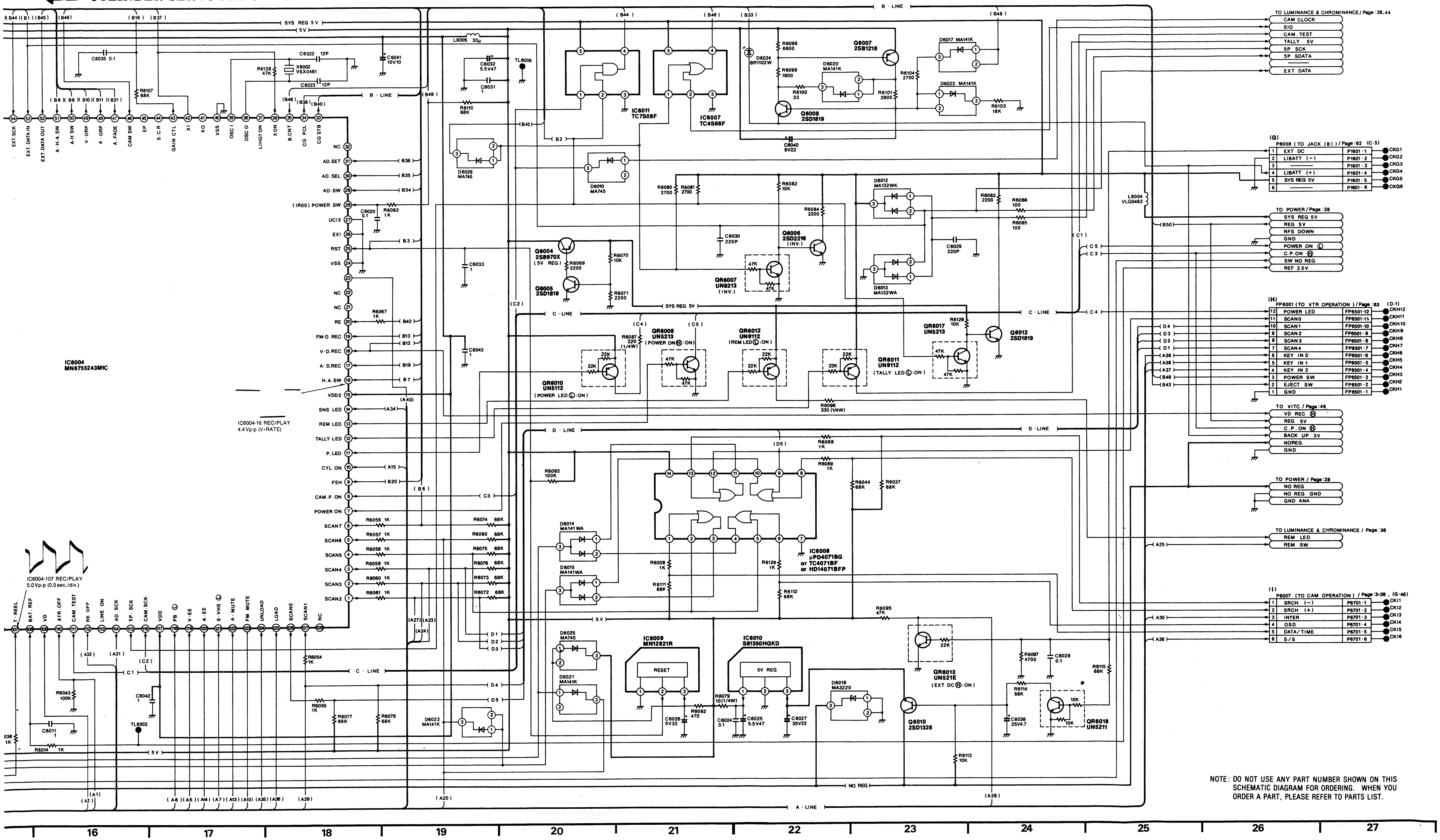
CAPSTAN SERVO PHASE LOOP

CYLINDER SERVO SPEED LOOP

CYLINDER SERVO PHASE LOOP

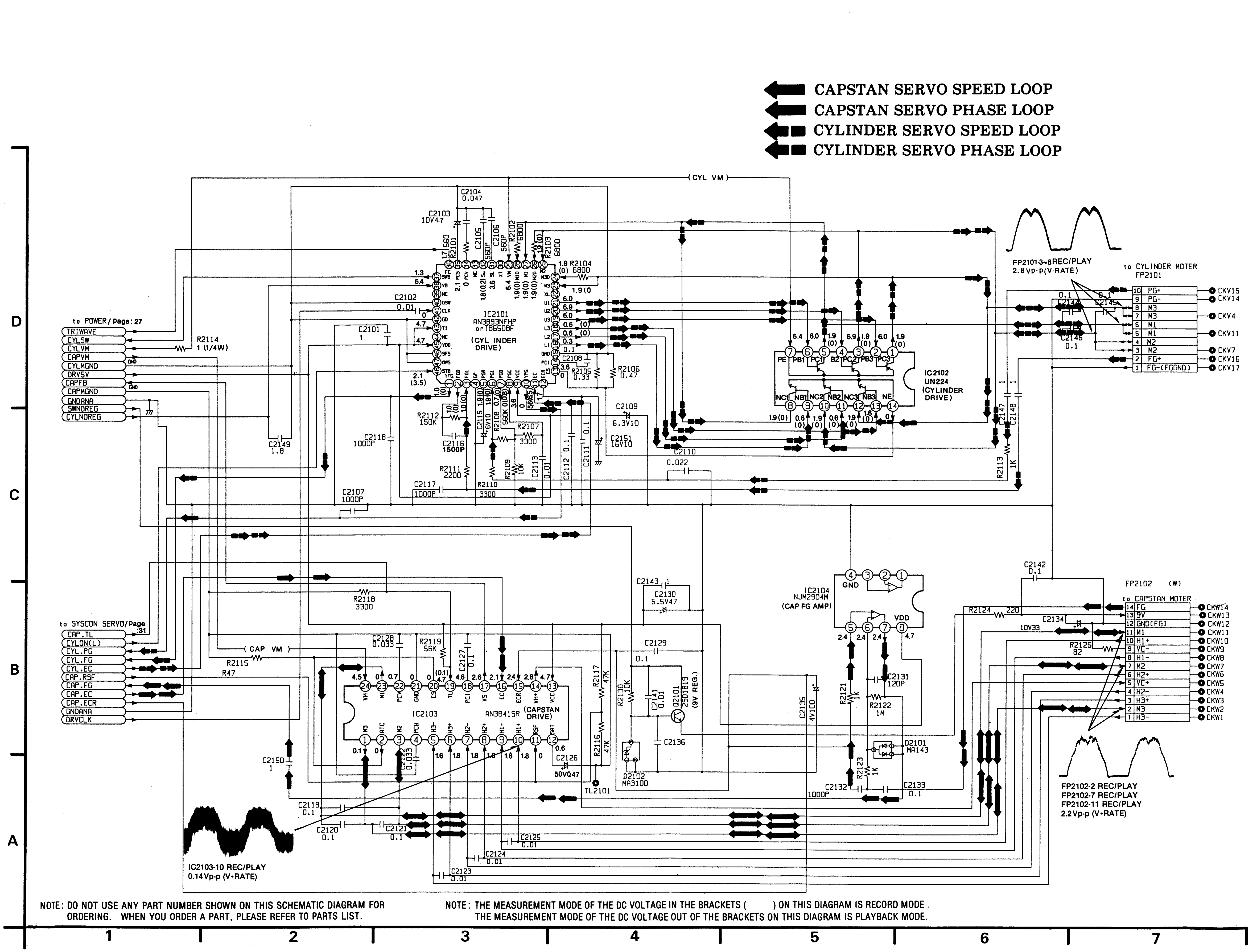

SYS REG 5V
B · LINE
A · LINE
C · LINE
D · LINE
IC6003
S3500B3
Q6003
XN1213
(INV.)
QR6004
XN4130X (S-TAB Ⓛ: ON)
D6009
MA745
IC6001
BA6219BFP
(LOADING MOTOR DRIVE)
IC6006
μPD40718G
or TC4071BF
or HD14071BFP
D6006
MA141WA
D6007
MA141WA
D6008
MA121
IC6004
MN6755243M1C
IC6004-65 REC/PLAY
4.4Vp-p (V·RATE)
IC6004-75 REC/PLAY
1.0Vp-p (V·RATE)
IC6004-76 REC/PLAY
1.5Vp-p (V·RATE)
IC6004-77 REC/PLAY
0.5Vp-p (V·RATE)
IC6004-81 PLAY
1.4Vp-p (V·RATE)
IC6004-107 REC/PLAY
5.0Vp-p (0.5sec./div.)
IC6004-16 REC/PLAY
4.4Vp-p (V·RATE)
D6201
MA141K
X6002
VSX0461
L6005 33μ
IC6011
TC7S08F
IC6007
TC4S66F
D6024
BR1102W
D6026
MA745
D6010
MA745
Q6004
2SB970X
(5V REG)
Q6005
2SD1819
Q6006
2SD2216
(INV.)
QR6007
UN9213
(INV.)
QR6008
UN5213
(POWER ON Ⓛ: ON)
QR6010
UN5112
(POWER LED Ⓛ: ON)
QR6012
UN9112
(REM LED Ⓛ: ON)
D6014
MA141WA
D6015
MA141WA
D6025
MA745
D6021
MA141K
D6022
MA141K
IC6009
MN12821R
RESET
IC6010
S81350HGKD
5V REG
TL6001
TL6002
TL6006
10
11
12
13
14
15
16
17
18
19
20
21
22

CYLINDER SERVO PHASE LOOP


IC6004
MN6755243M1C
IC6011
TC7S08F
IC6007
TC4S66F
IC6008
μPD4071BG
or TC4071BF
or HD14071BFP
IC6009
MN12821R
RESET
IC6010
S81350HGKD
5V REG
Q6004
2SB970X
(5V REG)
Q6005
2SD1819
Q6006
2SD2216
(INV.)
Q6007
2SB1218
Q6008
2SD1819
Q6010
2SD1328
Q6012
2SD1819
QR6007
UN9213
(INV.)
QR6008
UN5213
(POWER ON Ⓗ:ON)
QR6010
UN5112
(POWER LED Ⓛ:ON)
QR6011
UN9112
(TALLY LED Ⓛ:ON)
QR6012
UN9112
(REM LED Ⓛ:ON)
QR6013
UN521E
(EXT DC Ⓗ:ON)
QR6017
UN5213
QR6018
UN5211
D6010 MA745
D6012 MA132WK
D6013 MA132WA
D6014 MA141WA
D6015 MA141WA
D6017 MA141K
D6019 MA3220
D6020 MA141K
D6021 MA141K
D6022 MA141K
D6023 MA141K
D6024 BR1102W
D6025 MA745
D6026 MA745
X6002 VSX0461
L6004 VLQ0463
L6005 33μ
TL6002
TL6006
IC6004-16 REC/PLAY
4.4Vp-p (V-RATE)
IC6004-107 REC/PLAY
5.0Vp-p (0.5sec./div.)
SYS REG 5V
5V
B · LINE
C · LINE
D · LINE
A · LINE
NO REG
TO LUMINANCE & CHROMINANCE / Page : 38,44
CAM CLOCK
SIO
CAM . TEST
TALLY 5V
5P SCK
5P SDATA
EXT DATA
(G)
P6008 (TO JACK (B)) / Page : 62 (C-5)
1 EXT DC P1601 · 1 CKG1
2 LIBATT (−) P1601 · 2 CKG2
3 P1601 · 3 CKG3
4 LIBATT (+) P1601 · 4 CKG4
5 SYS REG 5V P1601 · 5 CKG5
6 P1601 · 6 CKG6
TO POWER / Page : 28
SYS REG 5V
REG 5V
RFS DOWN
GND
POWER ON Ⓛ
C.P.ON Ⓗ
SW NO REG
REF 2.5V
(H)
FP6001 (TO VTR OPERATION) / Page : 63 (D-1)
12 POWER LED FP6501-12 CKH12
11 SCAN0 FP6501-11 CKH11
10 SCAN1 FP6501-10 CKH10
9 SCAN2 FP6501 · 9 CKH9
8 SCAN3 FP6501 · 8 CKH8
7 SCAN4 FP6501 · 7 CKH7
6 KEY IN 0 FP6501 · 6 CKH6
5 KEY IN 1 FP6501 · 5 CKH5
4 KEY IN 2 FP6501 · 4 CKH4
3 POWER SW FP6501 · 3 CKH3
2 EJECT SW FP6501 · 2 CKH2
1 GND FP6501 · 1 CKH1
TO VITC / Page : 46
VD REC Ⓗ
REG 5V
C.P.ON Ⓗ
BACK UP 3V
NOREG
GND
TO POWER / Page : 28
NO REG
NO REG GND
GND ANA
TO LUMINANCE & CHROMINANCE / Page : 38
REM LED
REM SW
(I)
P6007 (TO CAM OPERATION) / Page : 3-39 , (G-46)
1 SRCH (−) P6701 · 1 CKI1
2 SRCH (+) P6701 · 2 CKI2
3 INTER P6701 · 3 CKI3
4 OSD P6701 · 4 CKI4
5 DATA/TIME P6701 · 5 CKI5
6 S/S P6701 · 6 CKI6
16
17
18
19
20
21
22
23
24
25
26
27

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

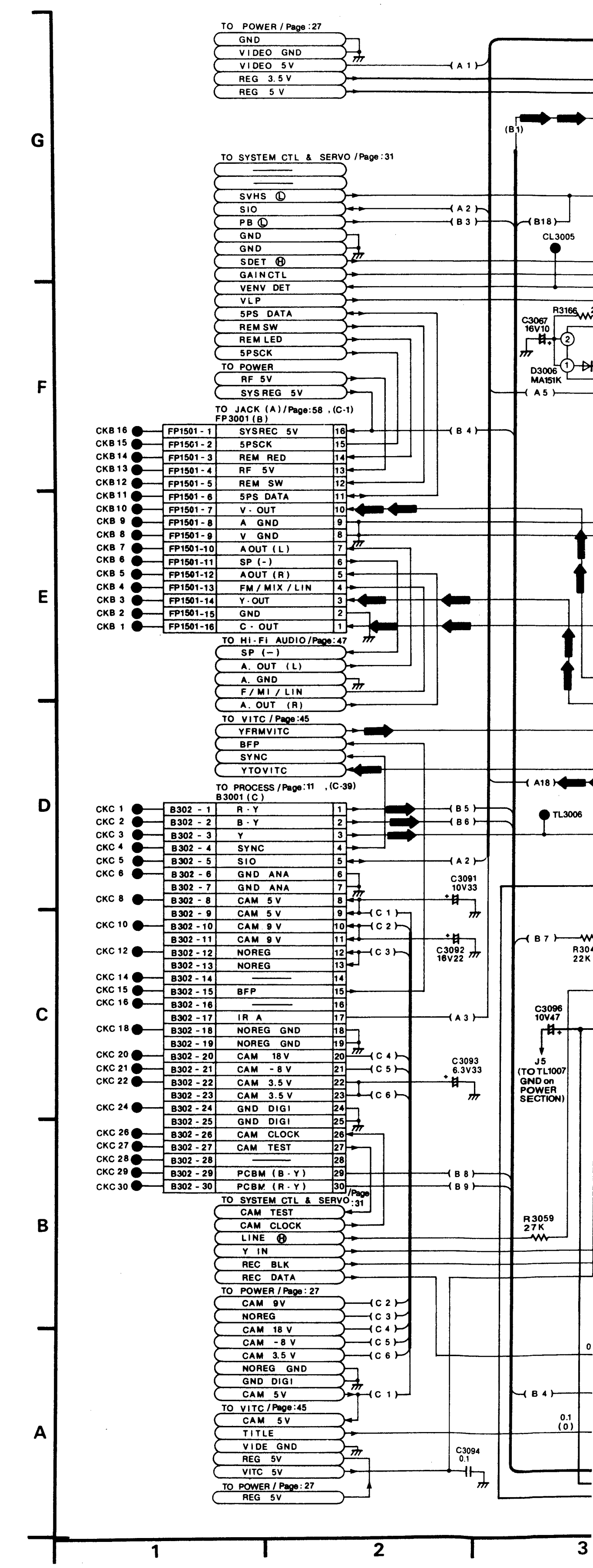
11. SUB SERVO SCHEMATIC DIAGRAM


CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
IC2101 AN3893NFHP or TB6508F (CYL INDER DRIVE)
IC2102 UN224 (CYLINDER DRIVE)
IC2103 AN3841SR (CAPSTAN DRIVE)
IC2104 NJM2904M (CAP FG AMP)
Q2101 2SD1819 (9V REG.)
D2101 MA143
D2102 MA3100
to POWER/Page:27
TRIWAVE
CYLSW
CYLVM
CAPVM
CYLMGND
DRV5V
CAPFB
CAPMGND
GNDANA
SWNOREG
CYLNOREG
to SYSCON SERVO/Page:31
CAP.TL
CYLON(L)
CYL.PG
CYL.FG
CYL.EC
CAP.RSF
CAP.FG
CAP.EC
CAP.ECR
GNDANA
DRVCLK
CYL VM
CAP VM
to CYLINDER MOTER FP2101
PG+
PG-
M3
M1
M2
FG+
FG-(FGGND)
CKV15
CKV14
CKV4
CKV11
CKV7
CKV16
CKV17
FP2102 (W) to CAPSTAN MOTER
FG
9V
GND(FG)
M1
H1+
VC-
H1-
M2
H2+
VC+
H2-
H3+
M3
H3-
CKW14
CKW13
CKW12
CKW11
CKW10
CKW9
CKW8
CKW7
CKW6
CKW5
CKW4
CKW3
CKW2
CKW1
FP2101-3~8 REC/PLAY 2.8Vp-p (V-RATE)
FP2102-2 REC/PLAY
FP2102-7 REC/PLAY
FP2102-11 REC/PLAY
2.2Vp-p (V-RATE)
IC2103-10 REC/PLAY 0.14Vp-p (V-RATE)
TL2101
A
B
C
D
E
F
1
2
3
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

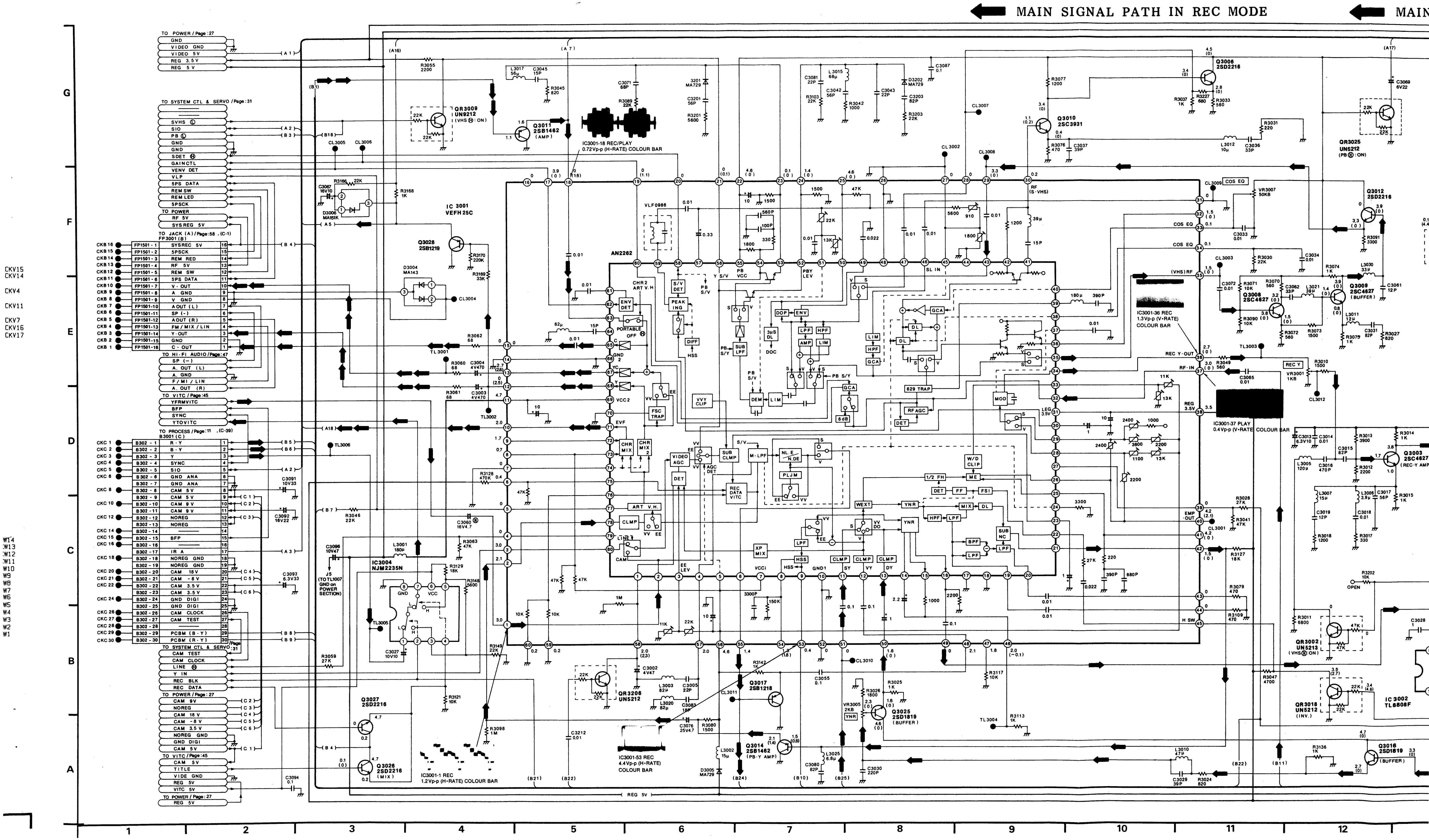
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

12. LUMINANCE/CHROMINANC


TO POWER / Page:27
TO SYSTEM CTL & SERVO / Page:31
TO JACK (A) / Page:58, (C-1) FP3001 (B)
TO HI-FI AUDIO / Page:47
TO VITC / Page:45
TO PROCESS / Page:11, (C-39) B3001 (C)
TO SYSTEM CTL & SERVO / Page:31
TO POWER / Page:27
TO VITC / Page:45
TO POWER / Page:27
CL3005
TL3006
D3006 MA151K
J5 (TO TL1007 GND on POWER SECTION)
A
B
C
D
E
F
G
1
2
3

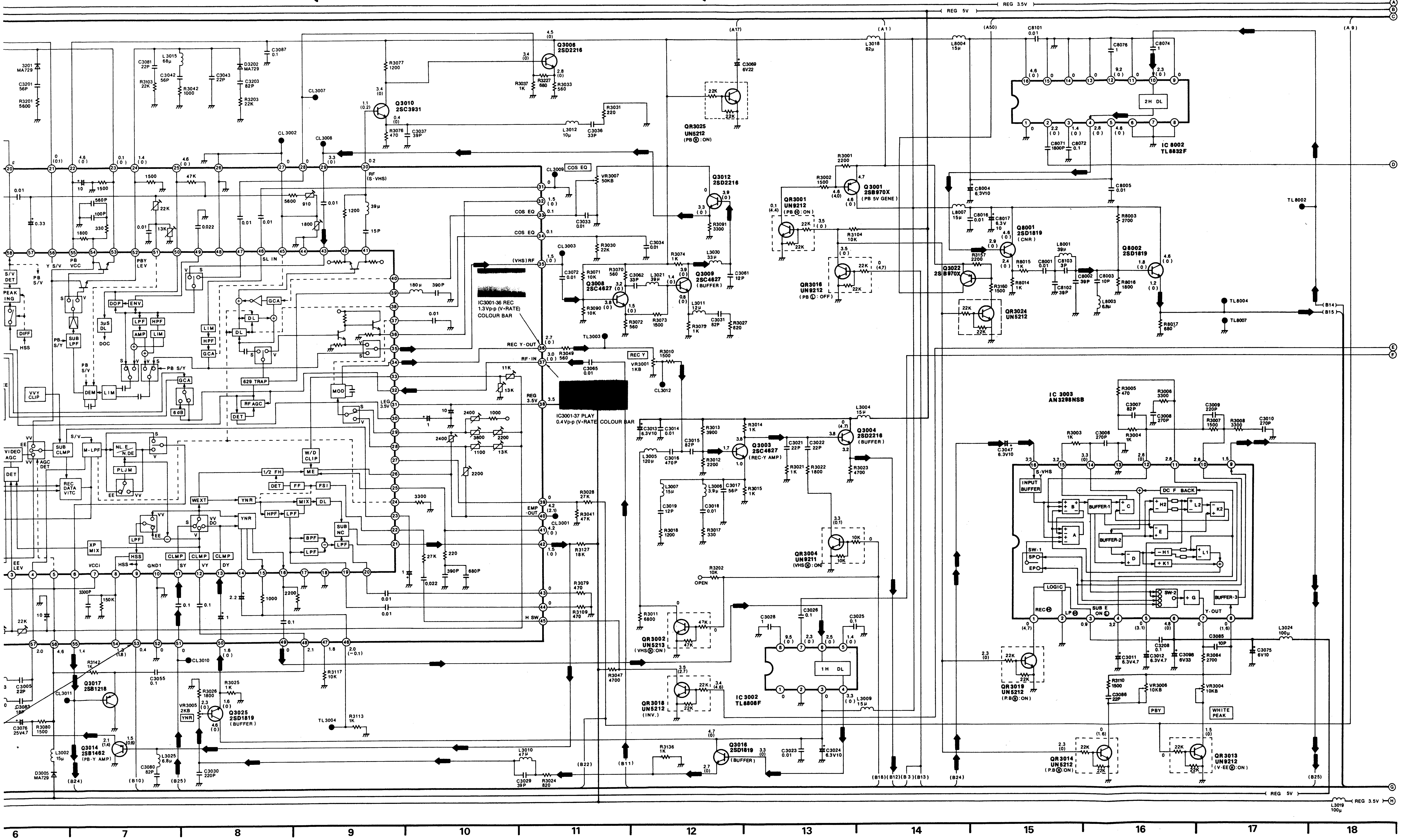
Back Page:
SYSTEM CTL & SERVO Section

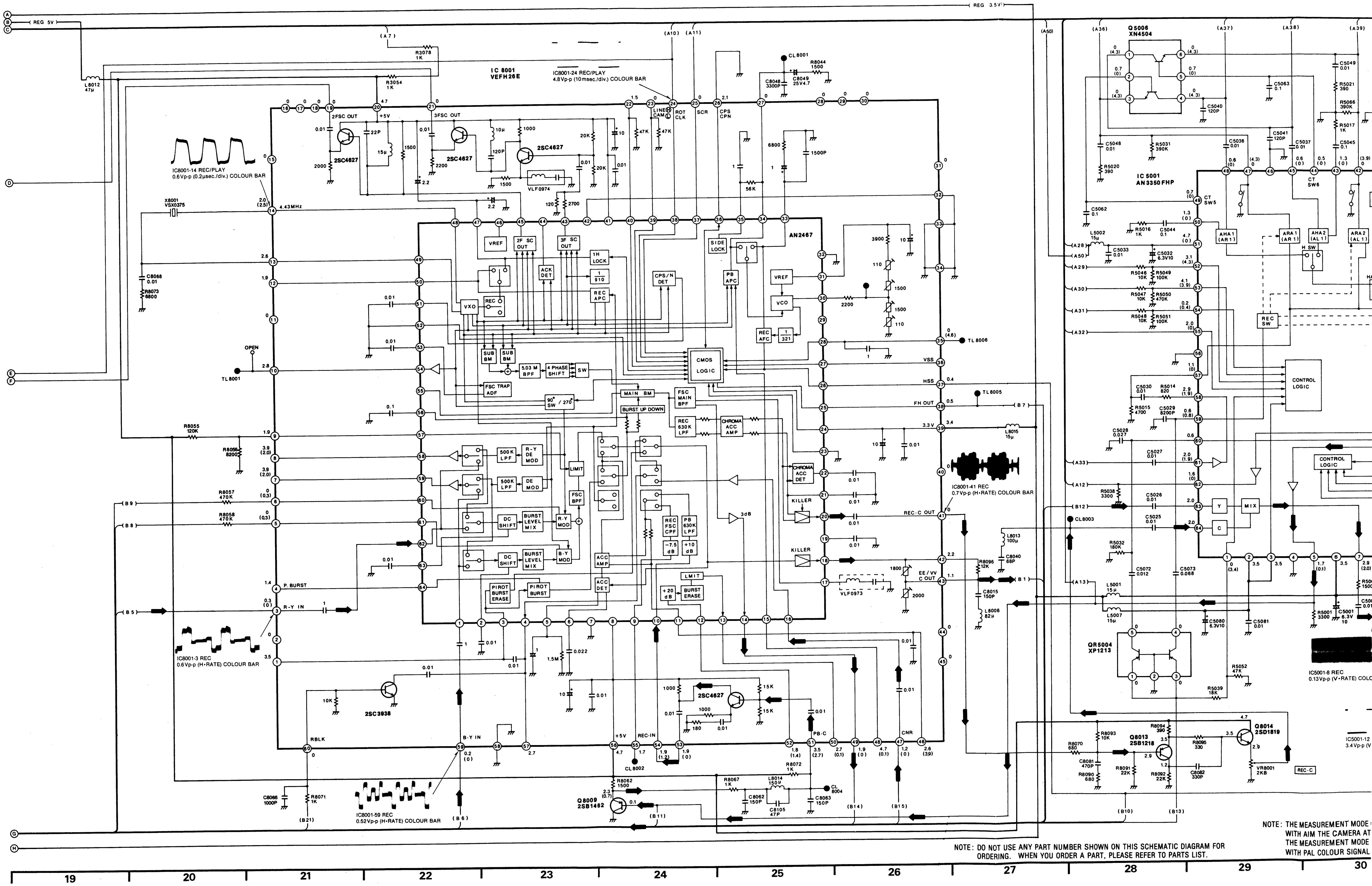
12. LUMINANCE/CHROMINANCE & HEAD AMP SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN
TO POWER / Page:27
GND
VIDEO GND
VIDEO 5V
REG 3.5V
REG 5V
TO SYSTEM CTL & SERVO / Page:31
SVHS
SIO
PB
GND
SDET
GAINCTL
VENV DET
VLP
5PS DATA
REM SW
REM LED
5PSCK
TO POWER
RF 5V
SYSREG 5V
TO JACK (A) / Page:58 (C-1)
FP3001 (B)
SYSREC 5V
5PSCK
REM RED
RF 5V
REM SW
5PS DATA
V-OUT
A GND
V GND
AOUT (L)
SP (-)
AOUT (R)
FM / MIX / LIN
Y OUT
GND
C-OUT
TO HI-FI AUDIO / Page:47
TO VITC / Page:45
YFRMVITC
BFP
SYNC
YTOVITC
TO PROCESS / Page:11 (C-39)
B3001 (C)
R-Y
B-Y
Y
SYNC
SIO
GND ANA
CAM 5V
CAM 9V
NOREG
BFP
IR A
NOREG GND
CAM 18V
CAM -8V
CAM 3.5V
GND DIGI
CAM CLOCK
CAM TEST
PCBM (B-Y)
PCBM (R-Y)
TO SYSTEM CTL & SERVO / Page:31
LINE
Y IN
REC BLK
REC DATA
TO POWER / Page:27
TO VITC / Page:45
TITLE
VIDE GND
REG 5V
VITC 5V
CKV15
CKV14
CKV4
CKV11
CKV7
CKV16
CKV17
IC 3001
VEFH 25C
AN2262
IC3004
NJM2235N
IC 3002
TL8808F
QR3009 UN9212 (VHS H: ON)
Q3011 2SB1462 (AMP)
IC3001-18 REC/PLAY 0.72Vp-p (H-RATE) COLOUR BAR
Q3028 2SB1219
Q3006 2SD2216
Q3010 2SC3931
Q3012 2SD2216
QR3025 UN5212 (PB H: ON)
Q3008 2SC4627
Q3009 2SC4627 (BUFFER)
IC3001-36 REC 1.3Vp-p (V-RATE) COLOUR BAR
IC3001-37 PLAY 0.4Vp-p (V-RATE) COLOUR BAR
Q3003 2SC4627 (REC-Y AMP)
QR3002 UN5213 (VHS H: ON)
QR3018 UN5212 (INV.)
Q3016 2SD1819 (BUFFER)
Q3027 2SD2216
Q3026 2SD2216 (MIX)
IC3001-1 REC 1.2Vp-p (H-RATE) COLOUR BAR
QR3208 UN5212
IC3001-53 REC 4.4Vp-p (H-RATE) COLOUR BAR
Q3017 2SB1218
Q3014 2SB1462 (PB-Y AMP)
Q3025 2SD1819 (BUFFER)
J5 (TO TL1007 GND on POWER SECTION)
REG 5V
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G

RAM

MAIN SIGNAL PATH IN REC MODE   MAIN SIGNAL PATH IN PLAYBACK MODE

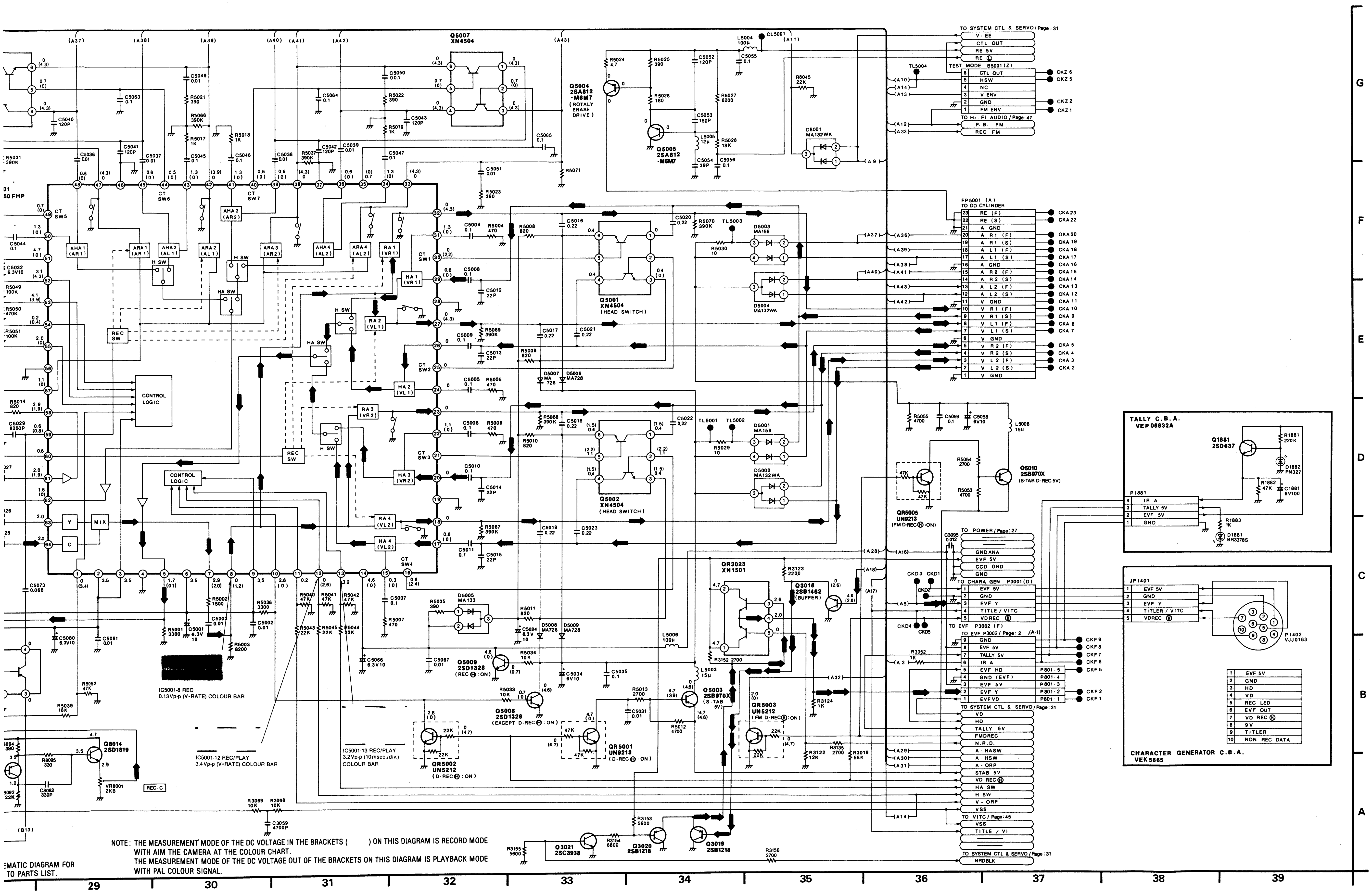

REG 3.5V
REG 5V
Q3006 2SD2216
Q3010 2SC3931
QR3025 UN5212 (PB Ⓗ : ON)
Q3012 2SD2216
Q3008 2SC4627
Q3009 2SC4627 (BUFFER)
QR3001 UN9212 (PB Ⓗ : ON)
Q3001 2SB970X (PB 5V GENE)
QR3016 UN9212 (PB Ⓛ : OFF)
Q3022 2SB970X
QR3024 UN5212
Q8001 2SD1819 (CNR)
Q8002 2SD1819
IC 8002 TL8832F
2H DL
TL8002
TL8004
TL8007
IC3001-36 REC 1.3Vp-p (V-RATE) COLOUR BAR
IC3001-37 PLAY 0.4Vp-p (V-RATE) COLOUR BAR
REC Y-OUT
RF-IN
REG 3.5V
COS EQ
(VHS) RF
RF (S-VHS)
EMP OUT
H SW
LEG 3.5V
REC Y
VR3001 1KB
VR3007 50KB
Q3003 2SC4627 (REC-Y AMP)
Q3004 2SD2216 (BUFFER)
QR3004 UN9211 (VHS Ⓗ : ON)
QR3002 UN5213 (VHS Ⓗ : ON)
QR3018 UN5212 (INV.)
Q3016 2SD1819 (BUFFER)
IC 3002 TL8808F
1H DL
IC 3003 AN3298NSB
INPUT BUFFER
BUFFER-1
BUFFER-2
BUFFER-3
DC F BACK
SW-1
SW-2
LOGIC
REC Ⓗ
LP Ⓗ
SUB E ON Ⓗ
Y-OUT
S-VHS
QR3019 UN5212 (P.B Ⓗ : ON)
QR3014 UN5212 (P.B Ⓗ : ON)
QR3013 UN9212 (V-EE Ⓗ : ON)
PBY
WHITE PEAK
Q3017 2SB1218
Q3014 2SB1462 (PB-Y AMP)
Q3025 2SD1819 (BUFFER)
VR3005 2KB
YNR
D3005 MA729
S/V DET
PEAK ING
DIFF
HSS
VIDEO AGC
DET
SUB CLMP
M-LPF
NL E N.DE
PLJM
REC DATA VITC
W/D CLIP
ME
1/2 FH
DET FF FSI
WEXT
MIX DL
HPF LPF
BPF
SUB NC
XP MIX
CLMP SY
CLMP VY
CLMP DY
GND1
VCCi
DEM
LIM
VVY CLIP
DOP ENV
LPF HPF
AMP LIM
3uS DL
DOC
SUB LPF
GCA
629 TRAP
RF AGC
MOD
6dB
SL IN
PBY LEV
PB VCC
Y S/V
PB S/V
EE LEV
CL3001
CL3002
CL3003
CL3007
CL3008
CL3009
CL3010
CL3011
CL3012
TL3003
TL3004
OPEN
(A17) (A1) (A50) (A9)
(B10) (B11) (B12) (B13) (B14) (B15) (B18) (B22) (B24) (B25) (B3)
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ Ⓗ
6 7 8 9 10 11 12 13 14 15 16 17 18



REG 5V
REG 3.5V
IC 8001
VEFH26E
AN2467
IC8001-24 REC/PLAY
4.8Vp-p (10msec./div.) COLOUR BAR
IC8001-14 REC/PLAY
0.6Vp-p (0.2μsec./div.) COLOUR BAR
IC8001-3 REC
0.6Vp-p (H-RATE) COLOUR BAR
IC8001-59 REC
0.52Vp-p (H-RATE) COLOUR BAR
IC8001-41 REC
0.7Vp-p (H-RATE) COLOUR BAR
X8001
VSX0375
4.43MHz
L8012
47μ
2SC4627
2SC3938
2SC4627
Q8009
2SB1462
Q8013
2SB1218
Q8014
2SD1819
VR8001
2KB
REC-C
2FSC OUT
3FSC OUT
VLF0974
VLF0973
VREF
2F SC OUT
3F SC OUT
1H LOCK
ACK DET
1/910
REC APC
CPS/N DET
SIDE LOCK
PB APC
VCO
REC AFC
1/321
CMOS LOGIC
VXO
SUB BM
5.03 M BPF
4 PHASE SHIFT
SW
FSC TRAP ADF
90° SW / 270°
MAIN BM
BURST UP DOWN
FSC MAIN BPF
REC 630K LPF
CHROMA ACC AMP
CHROMA ACC DET
KILLER
500K LPF
R-Y DE MOD
DE MOD
LIMIT
FSC BPF
DC SHIFT
BURST LEVEL MIX
R-Y MOD
B-Y MOD
ACC AMP
ACC DET
PIROT BURST ERASE
PIROT BURST
REC FSC CPF
PB 630K LPF
-7.5 dB
+10 dB
+20 dB
BURST ERASE
3dB
LINE CAM
ROT CLK
SCR
CPS CPN
VSS
HSS
FH OUT
3.3V
REC-C OUT
EE/VV C OUT
P. BURST
R-Y IN
RBLK
B-Y IN
+5V
REC-IN
PB-C
CNR
OPEN
TL8001
TL8005
TL8006
CL8001
CL8002
CL8003
CL8004
Q5006
XN4504
IC 5001
AN3350FHP
QR5004
XP1213
CT SW5
CT SW6
AHA1 (AR1)
ARA1 (AR1)
AHA2 (AL1)
ARA2 (AL1)
H SW
REC SW
CONTROL LOGIC
Y
C
MIX
IC5001-8 REC
0.13Vp-p (V-RATE) COLOUR BAR
IC5001-12
3.4Vp-p
19
20
21
22
23
24
25
26
27
28
29
30

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE
WITH AIM THE CAMERA AT
THE MEASUREMENT MODE
WITH PAL COLOUR SIGNAL

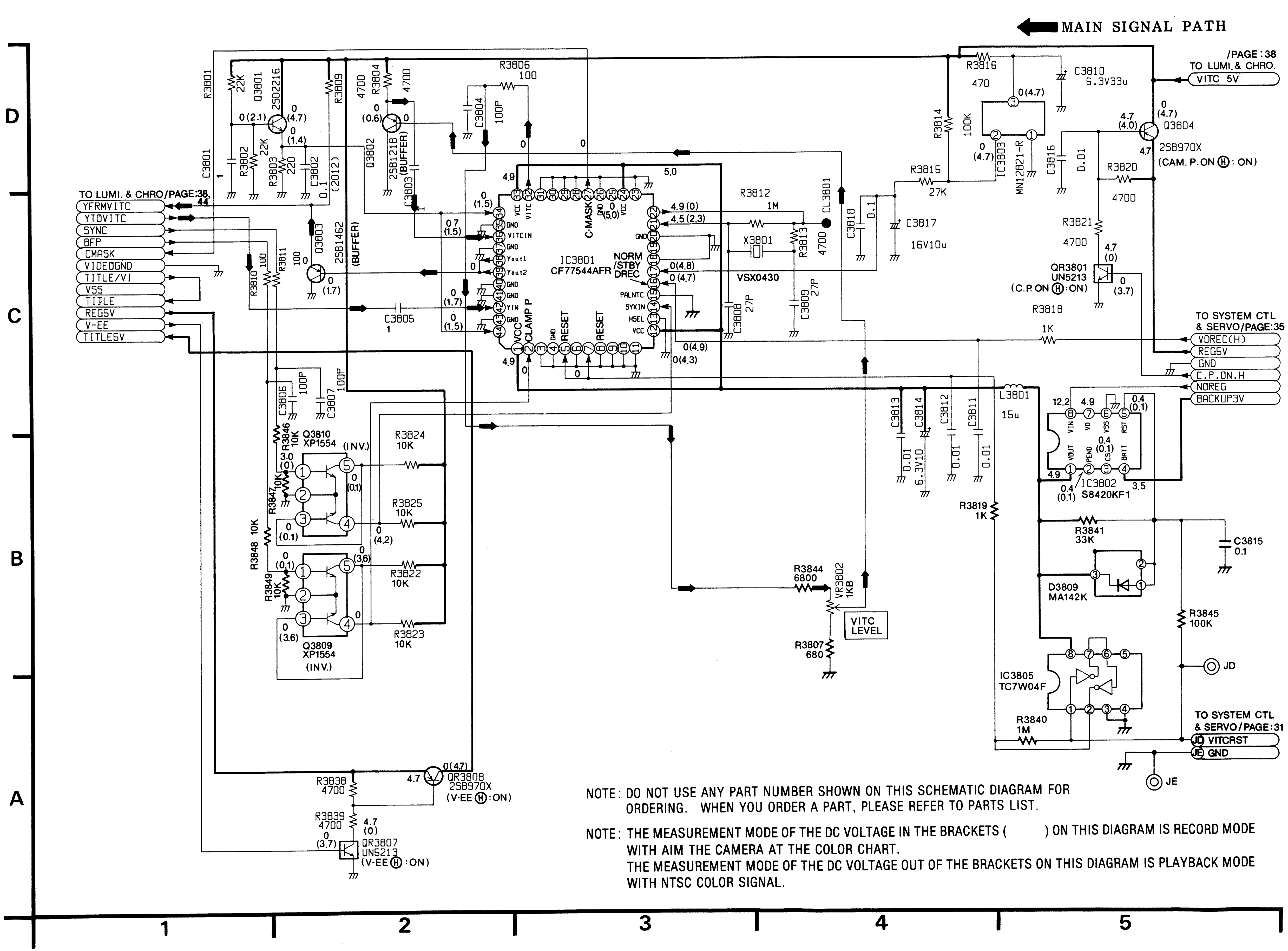

Q5007
XN4504
Q5004
2SA812
-M6M7
(ROTALY ERASE DRIVE)
Q5005
2SA812
-M6M7
L5004
100µ
CL5001
D8001
MA132WK
TL5004
TO SYSTEM CTL & SERVO/Page: 31
V · EE
CTL OUT
RE 5V
RE Ⓛ
TEST MODE B5001 (Z)
6 CTL OUT
5 HSW
4 NC
3 V ENV
2 GND
1 FM ENV
CKZ 6
CKZ 5
CKZ 2
CKZ 1
TO Hi · Fi AUDIO / Page: 47
P. B. FM
REC FM
FP5001 (A)
TO DD CYLINDER
23 RE (F)
22 RE (S)
21 A GND
20 A R1 (F)
19 A R1 (S)
18 A L1 (F)
17 A L1 (S)
16 A GND
15 A R2 (F)
14 A R2 (S)
13 A L2 (F)
12 A L2 (S)
11 V GND
10 V R1 (F)
9 V R1 (S)
8 V L1 (F)
7 V L1 (S)
6 V GND
5 V R2 (F)
4 V R2 (S)
3 V L2 (F)
2 V L2 (S)
1 V GND
CKA23
CKA22
OKA20
CKA 19
CKA 18
CKA 17
CKA 16
CKA 15
CKA 14
CKA 13
CKA 12
CKA 11
CKA 10
CKA 9
CKA 8
CKA 7
CKA 5
CKA 4
CKA 3
CKA 2
CT SW5
CT SW6
CT SW7
CT SW1
CT SW2
CT SW3
CT SW4
AHA 1 (AR 1)
ARA 1 (AR 1)
AHA 2 (AL 1)
ARA 2 (AL 1)
AHA 3 (AR 2)
ARA 3 (AR 2)
AHA 4 (AL 2)
ARA 4 (AL 2)
RA 1 (VR 1)
HA 1 (VR 1)
RA 2 (VL 1)
HA 2 (VL 1)
RA 3 (VR 2)
HA 3 (VR 2)
RA 4 (VL 2)
HA 4 (VL 2)
H SW
HA SW
REC SW
CONTROL LOGIC
Y
C
MIX
Q5001
XN4504
(HEAD SWITCH)
Q5002
XN4504
(HEAD SWITCH)
D5003
MA159
D5004
MA132WA
D5001
MA159
D5002
MA132WA
TL5003
TL5001
TL5002
D5005
MA133
D5007
MA 728
D5006
MA728
D5008
MA728
D5009
MA728
Q5009
2SD1328
(REC Ⓗ : ON)
Q5008
2SD1328
(EXCEPT D-REC Ⓗ : ON)
QR5002
UN5212
(D-REC Ⓗ : ON)
QR5001
UN9213
(D-REC Ⓗ : ON)
Q5003
2SB970X
(S-TAB 5V)
QR3023
XN1501
Q3018
2SB1462
(BUFFER)
QR5003
UN5212
(FM D-REC Ⓗ : ON)
Q3021
2SC3938
Q3020
2SB1218
Q3019
2SB1218
L5006
100µ
L5003
15µ
R5055
4700
C5059
0.1
C5058
6V10
L5008
15µ
R5054
2700
R5053
4700
Q5010
2SB970X
(S-TAB D-REC 5V)
QR5005
UN9213
(FM D-REC Ⓗ : ON)
TO POWER / Page: 27
C3095
0.012
GNDANA
EVF 5V
CCD GND
GND
CKD 3
CKD1
CKD2
CKD4
CKD5
TO CHARA GEN P3001 (D)
1 EVF 5V
2 GND
3 EVF Y
4 TITLE / VITC
5 VD REC Ⓗ
TO EVF P3002 (F)
TO EVF P3002 / Page: 2 ,(A-1)
9 GND
8 EVF 5V
7 TALLY 5V
6 IR A
5 EVF HD P801 · 5
4 GND (EVF) P801 · 4
3 EVF 5V P801 · 3
2 EVF Y P801 · 2
1 EVF VD P801 · 1
CKF 9
CKF 8
CKF 7
CKF 6
CKF 5
CKF 2
CKF 1
R3052
1K
TO SYSTEM CTL & SERVO / Page: 31
VD
HD
TALLY 5V
FMDREC
N.R.D.
A · HASW
A · HSW
A · ORP
STAB 5V
VD REC Ⓗ
HA SW
H SW
V - ORP
VSS
TO VITC / Page: 45
VSS
TITLE / VI
TO SYSTEM CTL & SERVO / Page: 31
NRDBLK
TALLY C.B.A.
VEP 06832A
Q1881
2SD637
R1881
220K
D1882
PN327
R1882
47K
C1881
6V100
P1881
4 IR A
3 TALLY 5V
2 EVF 5V
1 GND
R1883
1K
D1881
BR3378S
JP1401
1 EVF 5V
2 GND
3 EVF Y
4 TITLER / VITC
5 VDREC Ⓗ
P1402
VJJ0163
1 EVF 5V
2 GND
3 HD
4 VD
5 REC LED
6 EVF OUT
7 VD REC Ⓗ
8 9 V
9 TITLER
10 NON REC DATA
CHARACTER GENERATOR C.B.A.
VEK5865
IC5001-8 REC
0.13Vp-p (V-RATE) COLOUR BAR
IC5001-12 REC/PLAY
3.4Vp-p (V·RATE) COLOUR BAR
IC5001-13 REC/PLAY
3.2Vp-p (10msec./div.)
COLOUR BAR
Q8014
2SD1819
VR8001
2KB
REC · C
C8082
330P
R8095
330
R3069
10K
R3068
10K
C3059
4700P
R3155
5600
R3154
6800
R3153
5600
R3156
2700
(B13)
29
30
31
32
33
34
35
36
37
38
39
G
F
E
D
C
B
A

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

ΞMATIC DIAGRAM FOR
TO PARTS LIST.

]

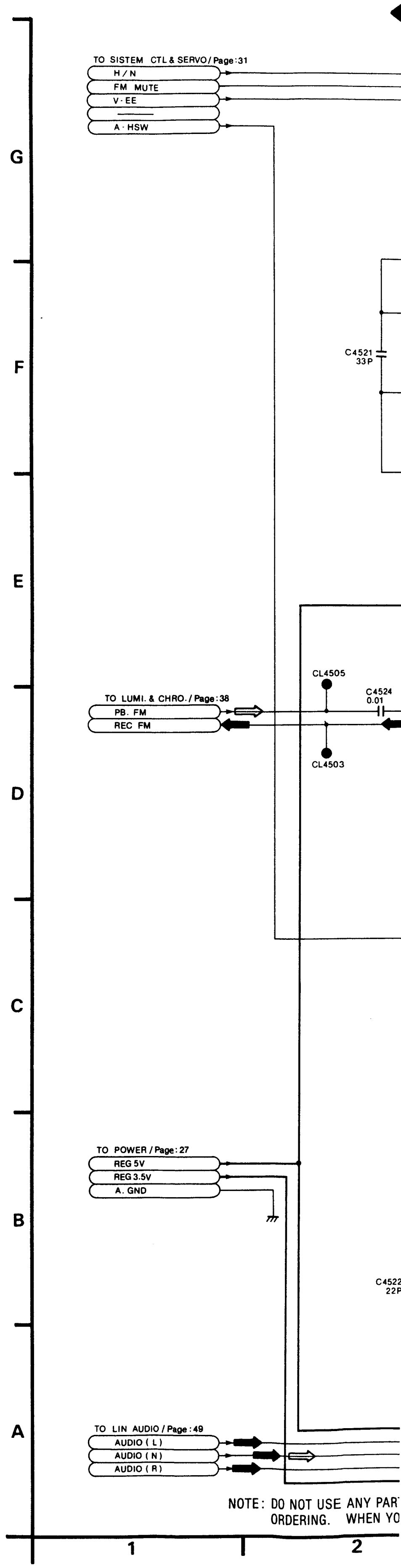
13. VITC SCHEMATIC DIAGRAM


MAIN SIGNAL PATH
/PAGE:38
TO LUMI. & CHRO.
VITC 5V
TO LUMI. & CHRO/PAGE:38, 44
YFRMVITC
YTOVITC
SYNC
BFP
CMASK
VIDEOGND
TITLE/VI
VSS
TITLE
REG5V
V-EE
TITLESV
IC3801
CF77544AFR
NORM /STBY DREC
C-MASK
VITCIN
Yout1
Yout2
YIN
CLAMP P
RESET
PALNTC
SYXIN
HSEL
Q3801 2SD2216
Q3802 2SB1218 (BUFFER)
Q3803 2SB1462 (BUFFER)
R3806 100
C3804 100P
R3812 1M
X3801 VSX0430
C3808 27P
C3809 27P
CL3801
R3813 4700
C3818 0.1
C3817 16V10u
R3815 27K
R3814 100K
R3816 470
IC3803 MN12821-R
C3810 6.3V33u
C3816 0.01
Q3804 2SB970X (CAM. P. ON Ⓗ: ON)
R3820 4700
R3821 4700
QR3801 UN5213 (C.P. ON Ⓗ: ON)
R3818 1K
TO SYSTEM CTL & SERVO/PAGE:35
VDREC(H)
REG5V
GND
C.P.ON.H
NOREG
BACKUP3V
L3801 15u
C3813 0.01
C3814 6.3V10
C3812 0.01
C3811 0.01
IC3802 S8420KF1
VIN VD VSS RST VOUT PENB CS BATT
R3819 1K
R3841 33K
C3815 0.1
D3809 MA142K
R3845 100K
JD
IC3805 TC7W04F
R3840 1M
TO SYSTEM CTL & SERVO/PAGE:31
JD VITCRST
JE GND
JE
C3805 1
C3806 100P
C3807 100P
R3810 100
R3811 100
Q3810 XP1554 (INV.)
Q3809 XP1554 (INV.)
R3846 10K
R3847 10K
R3848 10K
R3849 10K
R3824 10K
R3825 10K
R3822 10K
R3823 10K
R3844 6800
VR3802 1KB
VITC LEVEL
R3807 680
R3838 4700
R3839 4700
QR3808 2SB970X (V-EE Ⓗ: ON)
QR3807 UN5213 (V-EE Ⓗ: ON)
R3801 22K
R3802 22K
R3803 220
C3801 1
C3802 0.1 (2012)
R3809 4700
R3804 4700
1
2
3
4
5
A
B
C
D
E
F

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH NTSC COLOR SIGNAL.

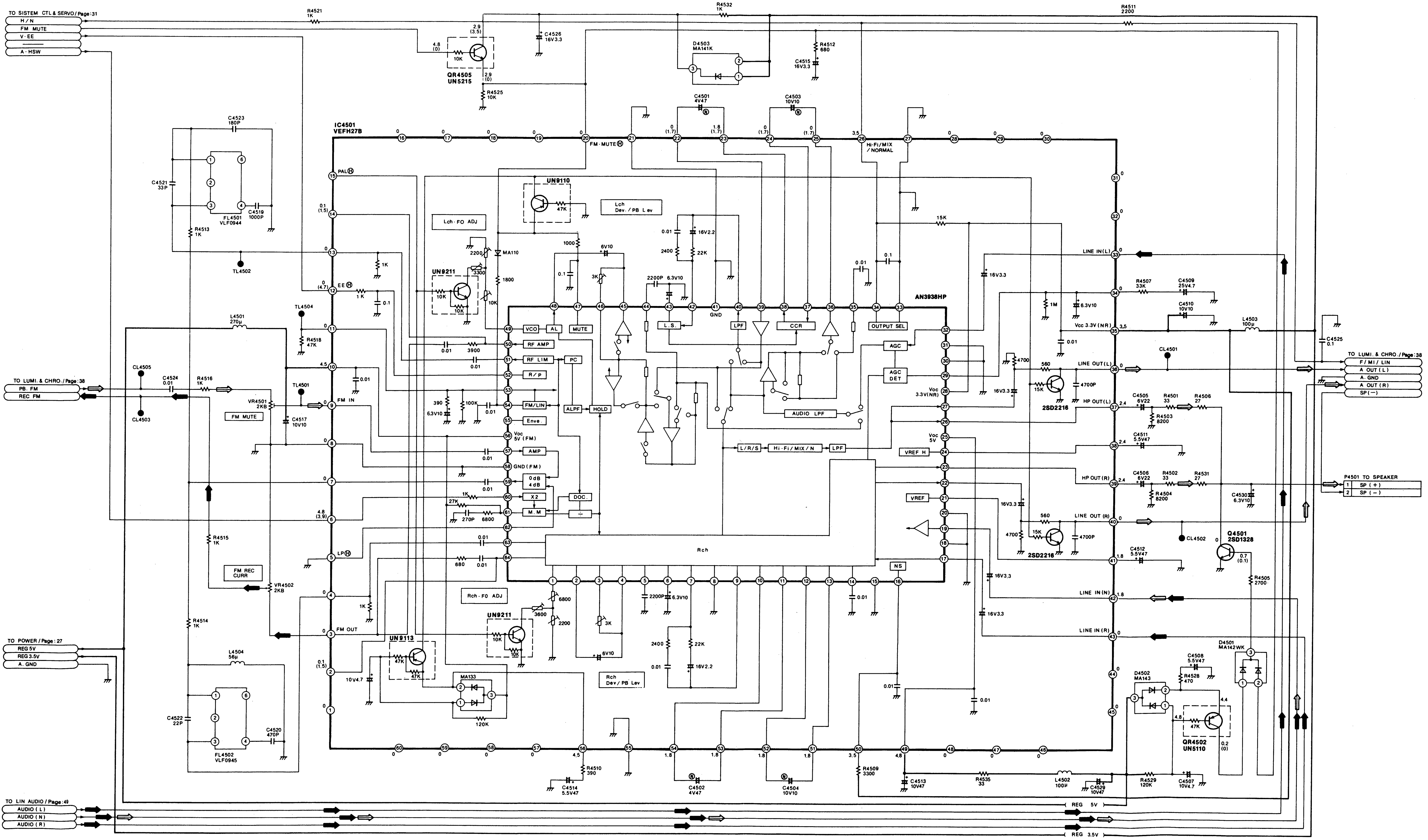
14. Hi-Fi AUDIO SCHEM


TO SISTEM CTL & SERVO/Page:31
H/N
FM MUTE
V-EE
A-HSW
TO LUMI. & CHRO./Page:38
PB. FM
REC FM
CL4505
CL4503
C4524 0.01
C4521 33P
TO POWER/Page:27
REG 5V
REG 3.5V
A. GND
C4522 22P
TO LIN AUDIO/Page:49
AUDIO (L)
AUDIO (N)
AUDIO (R)
G
F
E
D
C
B
A
1
2

NOTE: DO NOT USE ANY PART
ORDERING. WHEN YO

. Hi-Fi AUDIO SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE ⇦ MAIN SIGNAL PATH IN PLAYBACK MODE



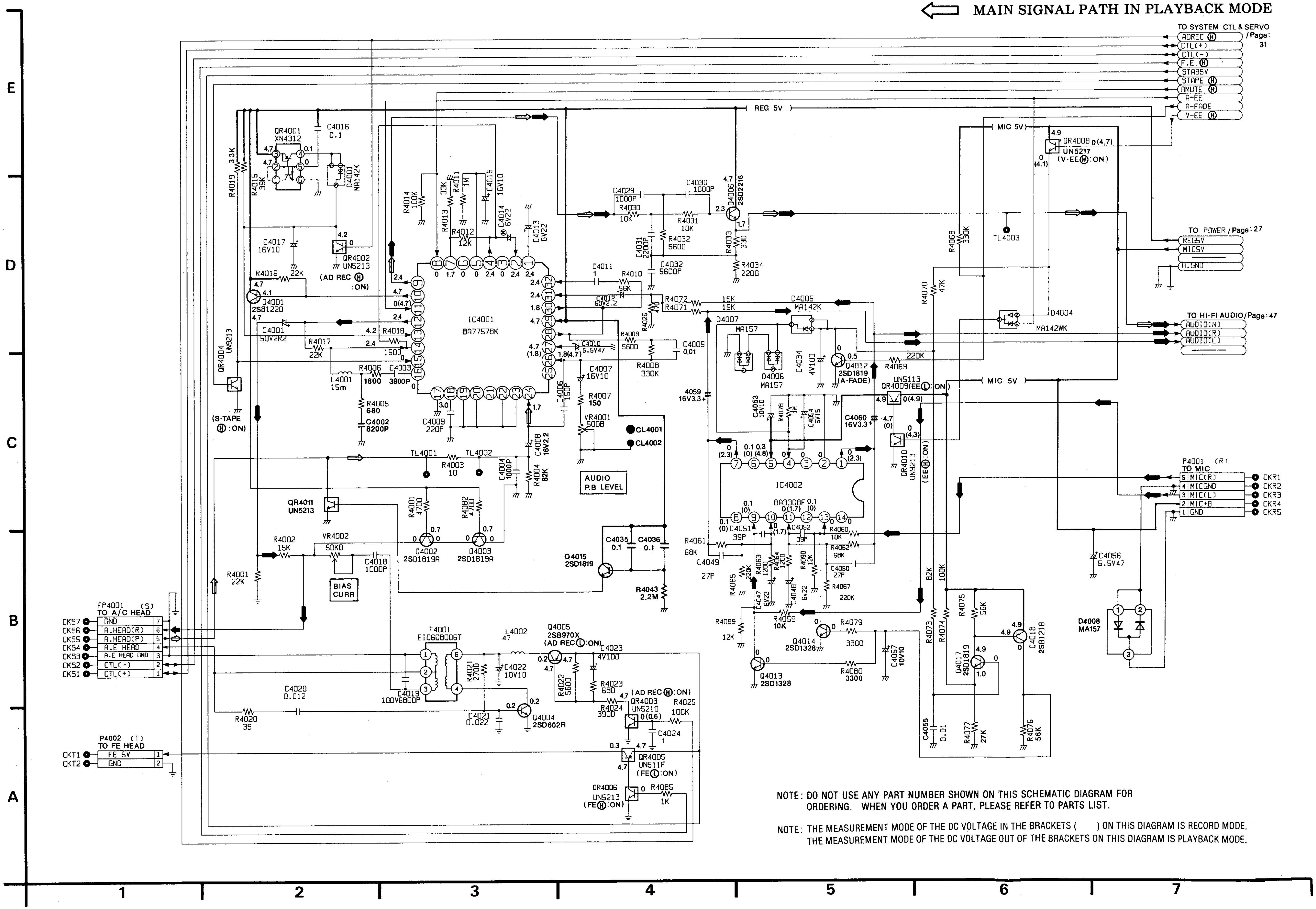
TO SISTEM CTL & SERVO / Page:31
H / N
FM MUTE
V-EE
A-HSW
TO LUMI. & CHRO. / Page:38
PB. FM
REC FM
TO POWER / Page:27
REG 5V
REG 3.5V
A. GND
TO LIN AUDIO / Page:49
AUDIO (L)
AUDIO (N)
AUDIO (R)
IC4501
VEFH27B
AN3938HP
QR4505
UN5215
UN9110
UN9211
UN9113
MA133
MA110
FL4501
VLF0944
FL4502
VLF0945
L4501
270µ
L4504
56µ
VR4501
2KB
VR4502
2KB
FM MUTE
FM REC CURR
Lch-FO ADJ
Rch-FO ADJ
Lch Dev./PB Lev
Rch Dev./PB Lev
TL4502
TL4504
TL4501
CL4505
CL4503
CL4501
CL4502
D4503
MA141K
D4502
MA143
D4501
MA142WK
QR4502
UN5110
Q4501
2SD1328
2SD2216
VCO
AL
MUTE
RF AMP
RF LIM
R / P
PC
FM/LIN
ALPF
HOLD
Enve.
AMP
0dB
4dB
X2
DOC.
M.M
L.S.
LPF
CCR
OUTPUT SEL
AGC
AGC DET
AUDIO LPF
L/R/S
Hi-Fi/MIX/N
VREF H
VREF
NS
Rch
Hi-Fi/MIX /NORMAL
FM-MUTE Ⓗ
PAL Ⓗ
EE Ⓗ
FM IN
FM OUT
LP Ⓗ
Vcc 5V (FM)
GND (FM)
GND
LINE IN (L)
LINE IN (N)
LINE IN (R)
LINE OUT (L)
LINE OUT (R)
HP OUT (L)
HP OUT (R)
Vcc 3.3V (NR)
TO LUMI. & CHRO. / Page:38
F/MI/LIN
A OUT (L)
A. GND
A OUT (R)
SP (−)
P4501 TO SPEAKER
1 SP (+)
2 SP (−)
REG 5V
REG 3.5V
1
2
3
4
5
6
7
8
9
10
11
12

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

15. AUDIO SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE



E
D
C
B
A
1
2
3
4
5
6
7
TO SYSTEM CTL & SERVO /Page: 31
ADREC Ⓗ
CTL(+)
CTL(-)
F.E Ⓗ
STAB5V
STAPE Ⓗ
AMUTE Ⓗ
A-EE
A-FADE
V-EE Ⓗ
REG 5V
MIC 5V
TO POWER/Page: 27
REG5V
MIC5V
A.GND
TO Hi-Fi AUDIO/Page: 47
AUDIO(N)
AUDIO(R)
AUDIO(L)
IC4001
BA7757BK
IC4002
BA3308F
QR4001
XN4312
QR4002
UN5213
(AD REC Ⓗ :ON)
Q4001
2SB1220
QR4004
UN9213
(S-TAPE Ⓗ :ON)
D4001
MA142K
Q4006
2SD2216
D4005
MA142K
D4007
MA157
D4006
MA157
Q4012
2SD1819
(A-FADE)
UN5113
QR4009(EE Ⓛ :ON)
QR4008
UN5217
(V-EE Ⓗ :ON)
D4004
MA142WK
QR4010
UN9213
(EE Ⓗ :ON)
TL4003
TL4001
TL4002
CL4001
CL4002
AUDIO P.B LEVEL
VR4001
500B
QR4011
UN5213
Q4002
2SD1819A
Q4003
2SD1819A
Q4015
2SD1819
VR4002
50KB
BIAS CURR
FP4001 (S)
TO A/C HEAD
GND
A.HEAD(R)
A.HEAD(P)
A.E HEAD
A.E HEAD GND
CTL(-)
CTL(+)
CKS7
CKS6
CKS5
CKS4
CKS3
CKS2
CKS1
T4001
EI06Q8006T
L4002
47
Q4005
2SB970X
(AD REC Ⓛ :ON)
Q4004
2SD602R
QR4003
UN5210
(AD REC Ⓗ :ON)
QR4005
UN511F
(FE Ⓛ :ON)
QR4006
UN5213
(FE Ⓗ :ON)
P4002 (T)
TO FE HEAD
FE 5V
GND
CKT1
CKT2
Q4014
2SD1328
Q4013
2SD1328
Q4017
2SD1819
Q4018
2SB1218
D4008
MA157
P4001 (R)
TO MIC
MIC(R)
MICGND
MIC(L)
MIC+B
GND
CKR1
CKR2
CKR3
CKR4
CKR5
C4016 0.1
R4019 3.3K
R4015 39K
C4017 16V10
R4016 22K
C4001 50V2R2
R4017 22K
R4018 1500
L4001 15m
R4006 1800
C4003 3900P
R4005 680
C4002 8200P
C4009 220P
R4014 100K
R4013 33K
R4011 1M
R4012 12K
C4015 16V10
C4014 6V22
C4013 6V22
C4029 1000P
R4030 10K
C4030 1000P
R4031 10K
C4031 2200P
R4032 5600
C4032 5600P
R4033 330
R4034 2200
C4011 1
R4010 56K
C4012 50V2.2
C4010 6.3V47
R4009 5600
R4008 330K
C4005 0.01
R4007 150
C4007 16V10
C4006 150P
C4008 16V2.2
C4004 1000P
R4004 82K
R4003 10
R4081 4700
R4082 4700
R4002 15K
C4018 1000P
R4001 22K
C4035 0.1
C4036 0.1
R4043 2.2M
R4072 15K
R4071 15K
R4026
4059 16V3.3
C4053 10V10
R4078
C4054 6V15
C4034 4V100
R4069 220K
C4060 16V3.3
R4068 330K
R4070 47K
R4061 68K
C4049 27P
C4051 39P
C4052 39P
R4063 1200
R4064 1200
C4048
R4090 12K
R4060 10K
R4062 68K
C4050 27P
R4067 220K
R4065 22K
C4047 6V22
R4059 10K
R4089 12K
R4079 3300
R4080 3300
C4057 10V10
C4056 5.5V47
R4073 82K
R4074 100K
R4075 56K
C4055 0.01
R4077 27K
R4076 56K
C4020 0.012
R4020 39
C4019 100V6800P
R4021 2700
C4022 10V10
C4021 0.022
R4022 5600
C4023 4V100
R4023 680
R4024 3900
R4025 100K
C4024 1
R4085 1K

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE. THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

MAIN C.B.A. ADDRESS INFORMATION

POWER Section	
Transistor	
Q1001	G-14
Q1002	E-13
Q1003	G-15
Q1004	G-14
Q1005	F-13
Q1006	E-16
Q1061	G-15
Q1062	G-16
Q1063	G-13
Transistor & Resistor	
QR1002	F-14
QR1006	F-14
QR1061	E-15
Integrated Circuit	
IC1001	F-15
IC1102	E-16
Test Point	
CL1007	G-9
CL1008	G-9
CL1009	G-10
TL1001	E-9
TL1002	E-9
TL1003	E-10
TL1004	E-10
TL1005	E-10
TL1006	E-10
TL1007	E-14
TL1008	E-10
TL1009	E-14
Adjustment	
VR1001	F-9
VR1002	F-9
VR1003	E-8
Connector	
P1001	G-11

ADDRESS INFORMATION

SUB SERVO Section	
Transistor	
Q2101	B-11
Integrated Circuit	
IC2101	B-14
IC2102	A-14
IC2103	B-13
IC2104	B-13
Test Point	
CL2101	B-9
TL2101	B-11
Connector	
FP2101	A-9
FP2102	A-11

ADDRESS INFORMATION

SYSTEM CONTROL & SERVO Section	
Transistor	
Q6002	D-13
Q6003	C-16
Q6004	C-10
Q6005	C-10
Q6006	A-17
Q6007	C-10
Q6008	C-10
Q6009	C-10
Q6010	F-16
Q6012	B-17
Transistor & Resistor	
QR6001	C-18
QR6002	C-19
QR6003	D-18
QR6004	D-19
QR6005	C-13
QR6007	A-17
QR6008	E-8
QR6010	D-14
QR6011	E-17
QR6012	B-17
QR6013	D-11
QR6015	D-17
QR6017	B-17
QR6018	E-16
Integrated Circuit	
IC6001	C-13
IC6002	C-14
IC6003	C-13
IC6004	D-8
IC6005	D-14
IC6006	D-13
IC6007	C-17
IC6008	D-14
IC6009	F-17
IC6010	F-17
IC6011	D-6
Test Point	
CL6004	D-7
CL6005	D-7
CL6201	D-6
CL6202	C-9
CL6203	C-9
CL6204	B-10
CL6205	C-10
CL6206	B-7
TL6001	E-7
TL6002	E-7
TL6003	D-4
TL6004	D-7
TL6005	D-7
TL6006	C-8
TL6007	C-10
Adjustment	
VR6201	C-9
Connector	
B6001	E-8
FP6001	G-11
P6001	F-11
P6004	A-7
P6005	G-6
P6006	D-1
P6007	G-5
P6008	C-11
P6009	D-11

ADDRESS INFORMATION

LUMINANCE/CHROMINANCE & HEAD AMP Section	
Transistor	
Q3001	D-22
Q3004	D-21
Q3006	F-20
Q3008	E-21
Q3009	E-21
Q3010	E-3
Q3011	G-22
Q3012	E-21
Q3014	D-21
Q3016	F-22
Q3017	D-3
Q3018	F-20
Q3019	G-3
Q3020	G-3
Q3021	G-3
Q3022	C-2
Q3025	F-2
Q3026	D-20
Q3027	E-20
Q3028	E-21
Q5001	B-20
Q5002	A-21
Q5003	B-20
Q5004	A-4
Q5005	A-5
Q5006	B-20
Q5007	B-20
Q5008	B-19
Q5009	A-20
Q5010	B-19
Q8001	F-5
Q8002	E-6
Q8009	F-18
Q8013	E-6
Q8014	E-18
Transistor & Resistor	
QR3001	D-22
QR3002	D-2
QR3004	D-21
QR3009	E-20
QR3013	D-21
QR3014	D-2
QR3016	D-22
QR3018	D-3
QR3019	D-2
QR3023	F-4
QR3024	C-2
QR3025	F-2
QR3206	C-3
QR5001	C-19
QR5002	B-3
QR5003	C-3
QR5004	C-21
QR5005	B-19
Integrated Circuit	
IC3001	E-3
IC3002	F-21
IC3003	D-22
IC3004	D-5
IC5001	B-3
IC8001	E-5
IC8002	F-19
Test Point	
CL3001	E-3
CL3002	E-3
CL3003	E-3
CL3004	E-4
CL3005	E-4
CL3006	E-4
CL3007	E-3
CL3008	E-3
CL3009	E-2
CL3010	D-3
CL3011	D-4
CL3012	E-3
CL5001	B-4
CL8001	E-5
CL8002	F-6
CL8003	E-5
CL8004	F-6
TL3001	C-5
TL3002	D-5
TL3003	E-2
TL3004	D-3
TL3005	D-19
TL3006	E-22
TL5001	A-3
TL5002	A-3
TL5003	A-3
TL5004	D-8
TL8001	F-5
TL8004	E-6
TL8005	E-5
TL8006	E-5
TL8007	E-5
Adjustment	
VR3001	D-2
VR3004	D-3
VR3005	F-2
VR3006	D-3
VR3007	E-3
VR8001	E-5
Connector	
B3001	E-22
B5001	C-4
FP3001	B-6
FP5001	A-3
P3001	G-2
P3002	G-4

ADDRESS INFORMATION

VITC Section	
Transistor	
Q3801	B-22
Q3802	B-1
Q3803	B-22
Q3804	C-2
Q3808	C-22
Q3809	B-22
Q3810	C-22
Transistor & Resistor	
QR3801	C-1
QR3807	C-22
Test Point	
CL3801	A-1
Integrated Circuit	
IC3801	B-22
IC3802	B-22
IC3803	B-2
IC3805	C-21
Adjustment	
VR3802	A-2

ADDRESS INFORMATION

AUDIO Section	
Transistor	
Q4001	B-15
Q4002	A-16
Q4003	A-16
Q4004	A-15
Q4005	A-15
Q4006	B-15
Q4010	B-16
Q4012	F-7
Q4013	G-17
Q4014	F-17
Q4015	A-16
Q4017	F-7
Q4018	F-7
Transistor & Resistor	
QR4001	B-15
QR4002	B-15
QR4003	A-16
QR4004	B-16
QR4005	A-16
QR4006	A-16
QR4008	F-7
QR4009	F-7
QR4011	A-16
Integrated Circuit	
IC4001	B-16
IC4002	F-17
Test Point	
CL4001	B-8
CL4002	B-8
TL4001	B-8
TL4002	A-7
TL4003	B-7
Adjustment	
VR4001	B-8
VR4002	B-8
Connector	
FP4001	A-8
P4001	G-6
P4002	C-1

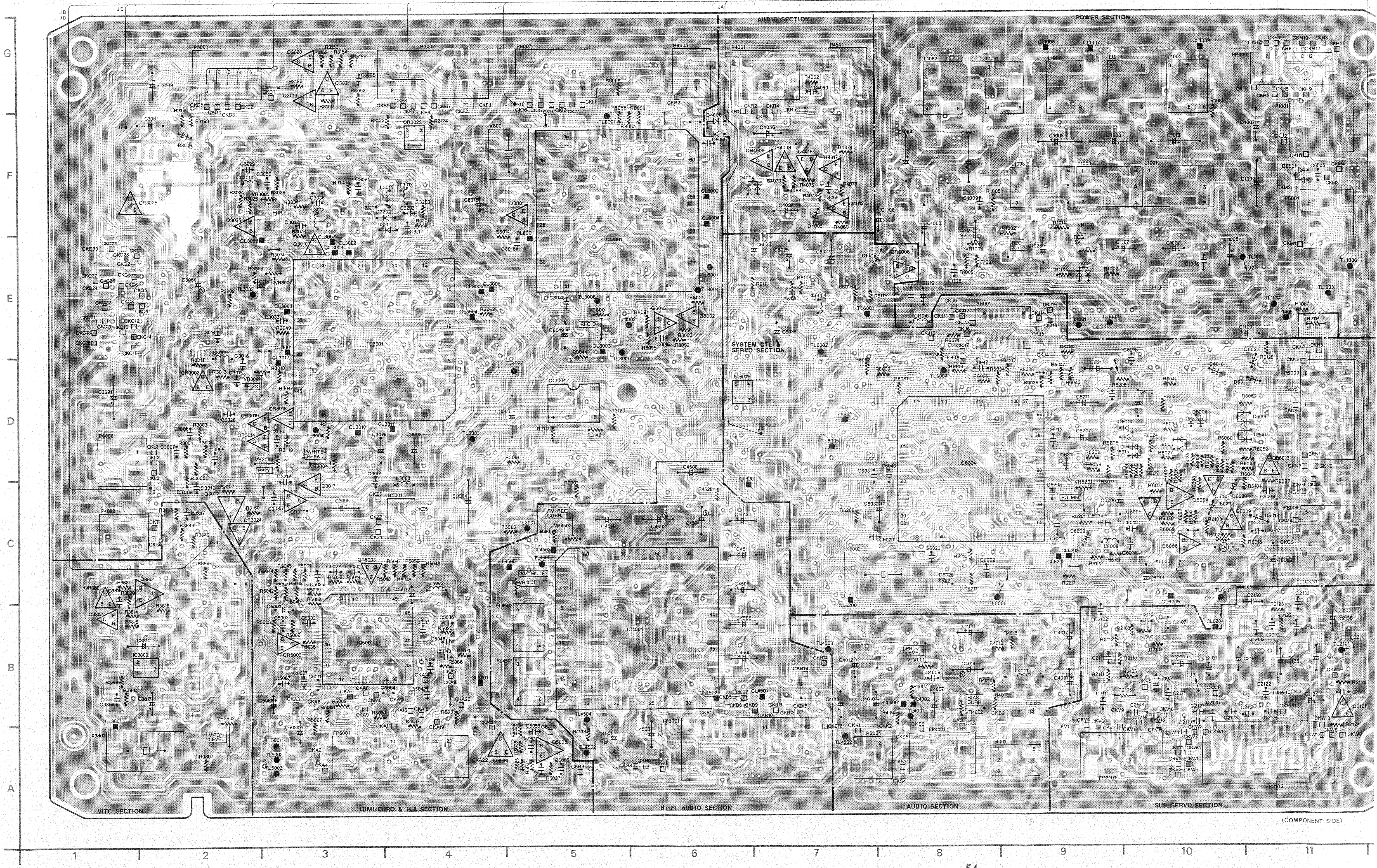
ADDRESS INFORMATION

Hi-Fi AUDIO Section	
Transistor	
Q4501	B-18
Transistor & Resistor	
QR4502	B-18
QR4505	B-18
Integrated Circuit	
IC4501	B-6
Test Point	
CL4501	B-7
CL4502	B-6
CL4503	C-5
CL4505	C-5
TL4501	C-5
TL4502	A-5
TL4504	B-5
Adjustment	
VR4501	C-5
VR4502	C-5

ADDRESS INFORMATION

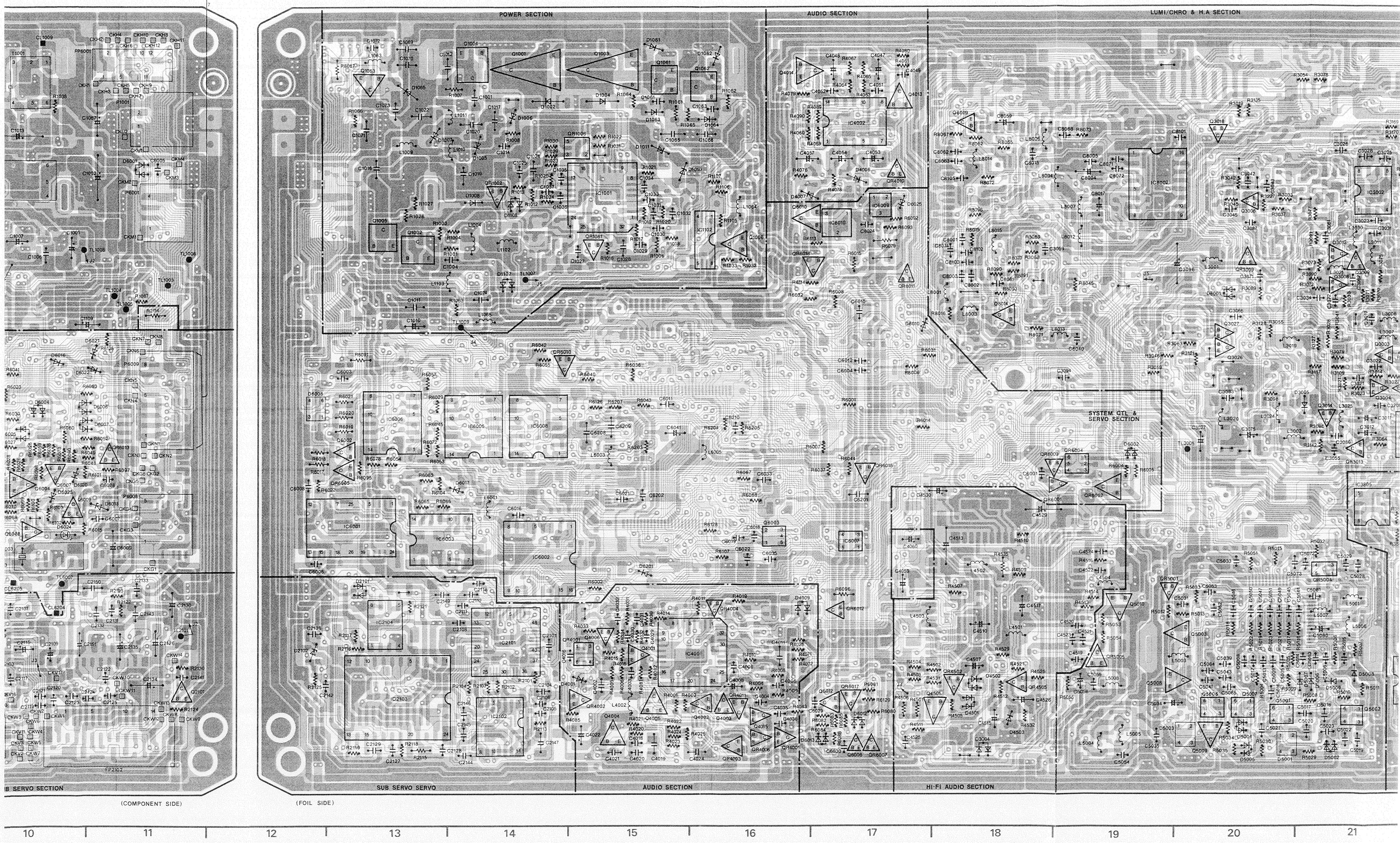
Back Page:
AUDIO Section

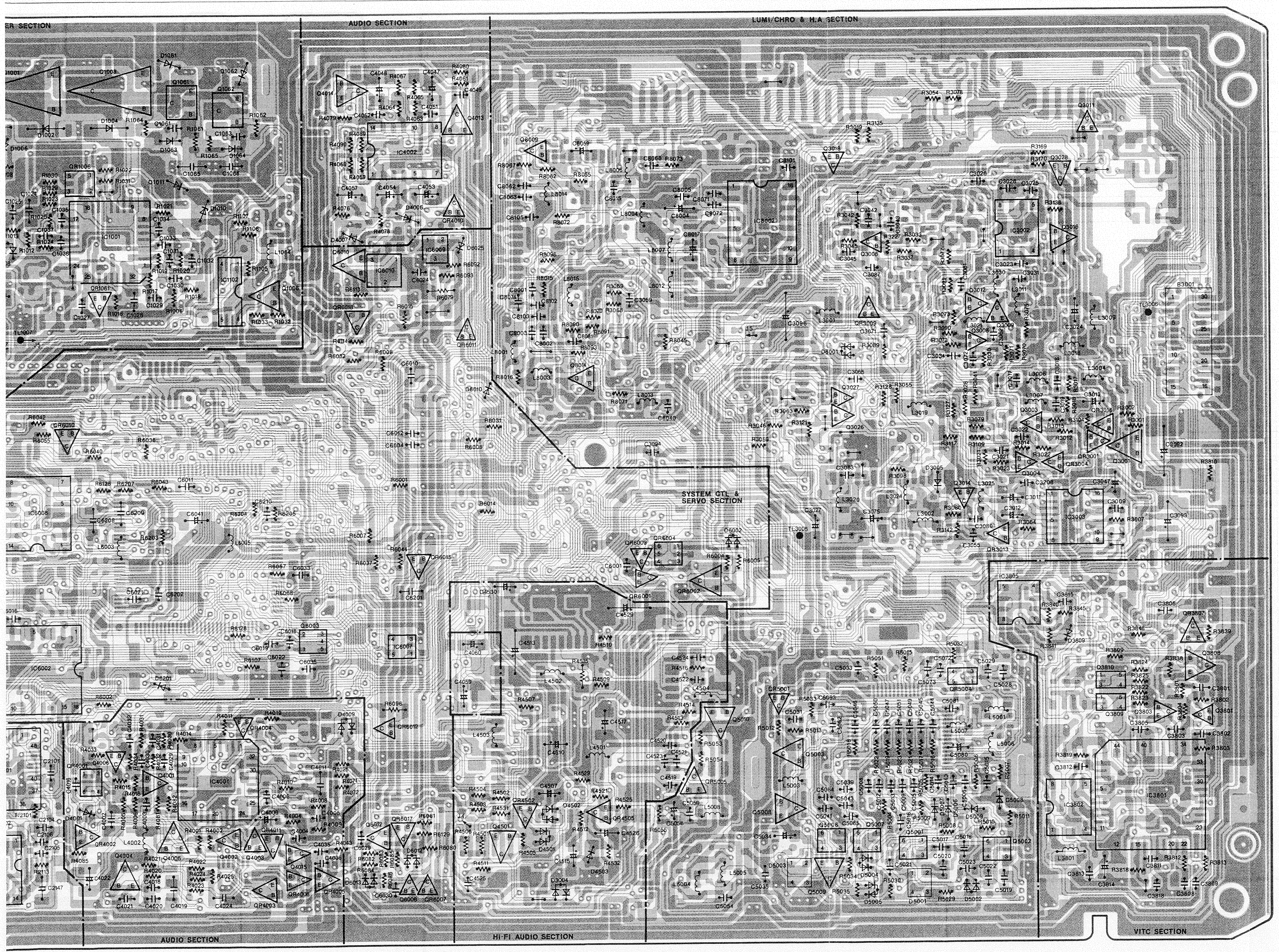
16. MAIN (POWER/SYSTEM CONTROL & SERVO, SUB SERVO, LUMINANCE/CHROMINANCE & HEAD AMP, VITC, Hi-Fi AUDIO and AUDIO Sections) C.B.A.



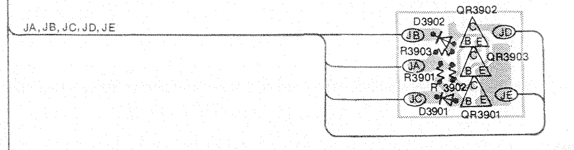
AUDIO SECTION
POWER SECTION
SYSTEM CTL & SERVO SECTION
VITC SECTION
LUMI/CHRO & H.A SECTION
HI-FI AUDIO SECTION
AUDIO SECTION
SUB SERVO SECTION
(COMPONENT SIDE)
IC3001
IC3004
IC8001
IC6001
IC6004
IC5001
IC4501
IC3803
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

d AUDIO Sections) C.B.A. (VEP03A86F)

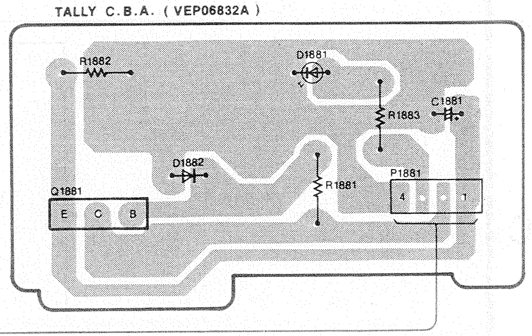

POWER SECTION
AUDIO SECTION
LUMI/CHRO & H.A SECTION
SYSTEM CTL & SERVO SECTION
B SERVO SECTION
SUB SERVO SERVO
AUDIO SECTION
HI-FI AUDIO SECTION
(COMPONENT SIDE)
(FOIL SIDE)
10
11
12
13
14
15
16
17
18
19
20
21


ER SECTION
AUDIO SECTION
LUMI/CHRO & H.A SECTION
SYSTEM CTL & SERVO SECTION
AUDIO SECTION
HI-FI AUDIO SECTION
VITC SECTION
4
15
16
17
18
19
20
21
22
23
24
25

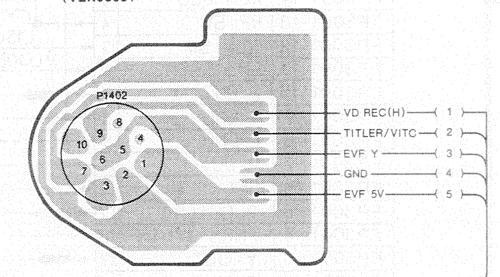
VITC RESET C.B.A. (VEP00V72A)


JA,JB,JC,JD,JE
D3902
QR3902
JB
R3903
QR3903
JA
R3901
3902
JC
JE
JD
D3901
QR3901

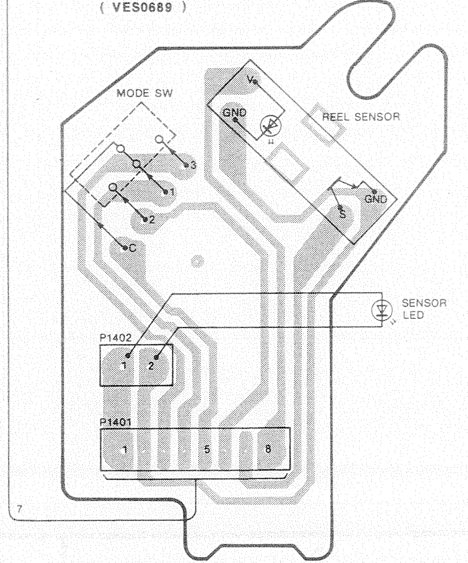
TALLY C.B.A. (VEP06832A)


R1682
D1681
C1881
R1883
D1882
R1881
P1881
Q1881
E C B
6

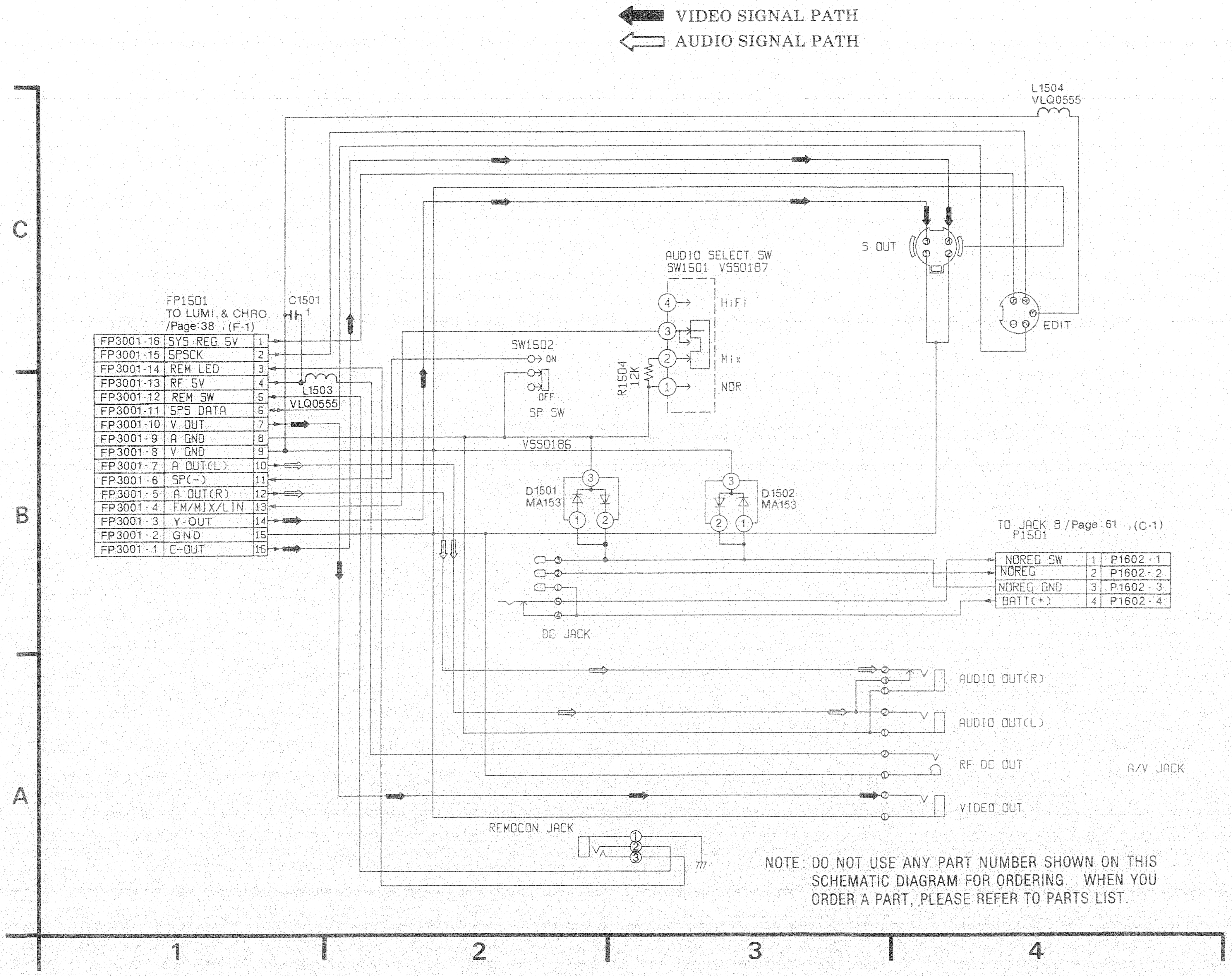
CHARACTER GENERATOR C.B.A. (VEKS865)


P1402
VD REC(H) 1
TITLER/VITC 2
EVF Y 3
GND 4
EVF 5V 5

MECHANISM CONNECTION C.B.A. (VES0689)

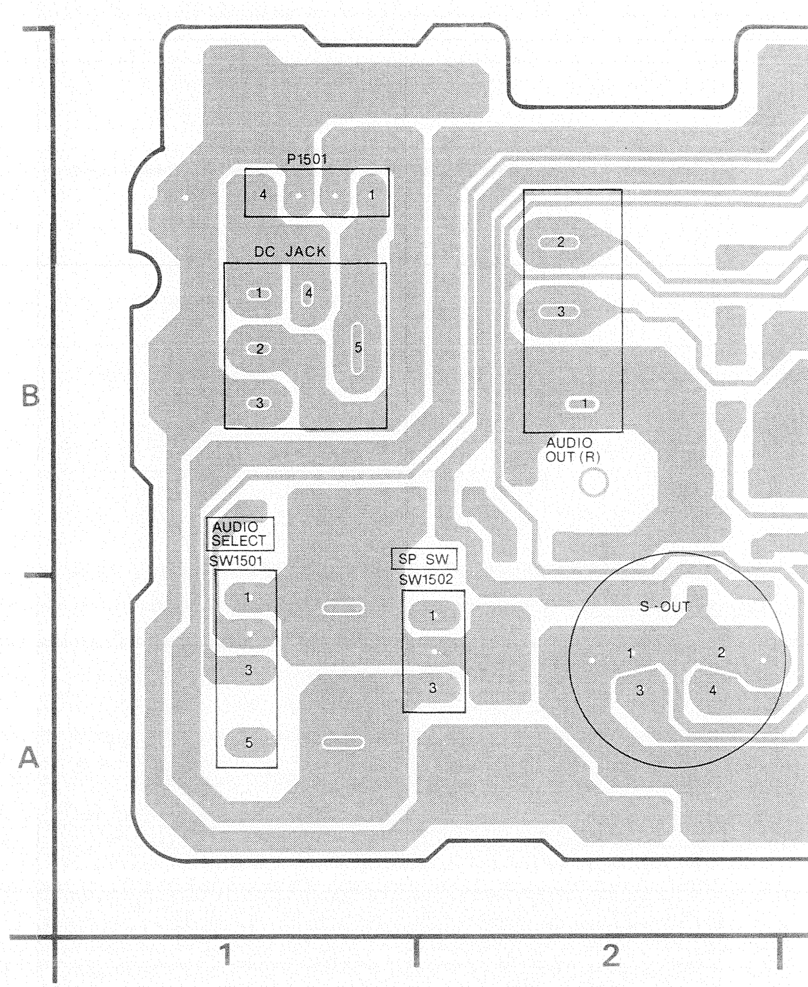

MODE SW
REEL SENSOR
GND
GND
SENSOR LED
P1402
P1401
7

17. AV JACK (A) SCHEMATIC DIAGRAM

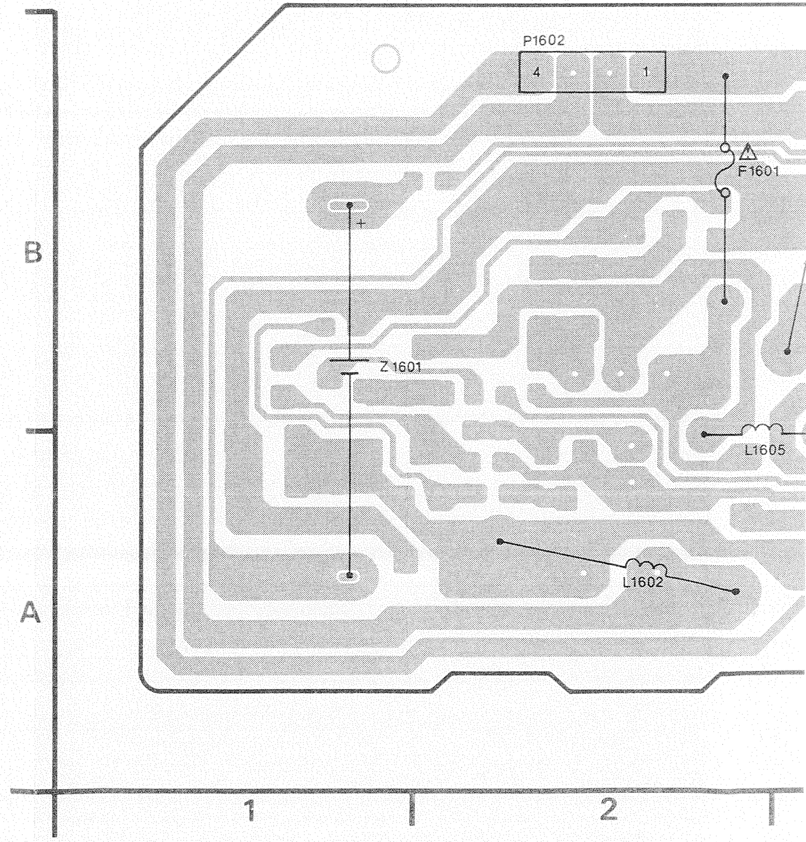

VIDEO SIGNAL PATH
AUDIO SIGNAL PATH
C
B
A
1
2
3
4
FP1501
TO LUMI. & CHRO.
/Page:38 ,(F-1)
FP3001-16 SYS.REG 5V 1
FP3001-15 SPSCK 2
FP3001-14 REM LED 3
FP3001-13 RF 5V 4
FP3001-12 REM SW 5
FP3001-11 SPS DATA 6
FP3001-10 V OUT 7
FP3001-9 A GND 8
FP3001-8 V GND 9
FP3001-7 A OUT(L) 10
FP3001-6 SP(-) 11
FP3001-5 A OUT(R) 12
FP3001-4 FM/MIX/LIN 13
FP3001-3 Y-OUT 14
FP3001-2 GND 15
FP3001-1 C-OUT 16
C1501
L1503
VLQ0555
L1504
VLQ0555
S OUT
EDIT
AUDIO SELECT SW
SW1501 VSS0187
HiFi
Mix
NOR
SW1502
ON
OFF
SP SW
VSS0186
R1504
12K
D1501
MA153
D1502
MA153
TO JACK B /Page:61 ,(C-1)
P1501
NOREG SW 1 P1602-1
NOREG 2 P1602-2
NOREG GND 3 P1602-3
BATT(+) 4 P1602-4
DC JACK
AUDIO OUT(R)
AUDIO OUT(L)
RF DC OUT
VIDEO OUT
A/V JACK
REMOCON JACK

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

18. AV JACK (A) C.B.A. (VEP03946A)

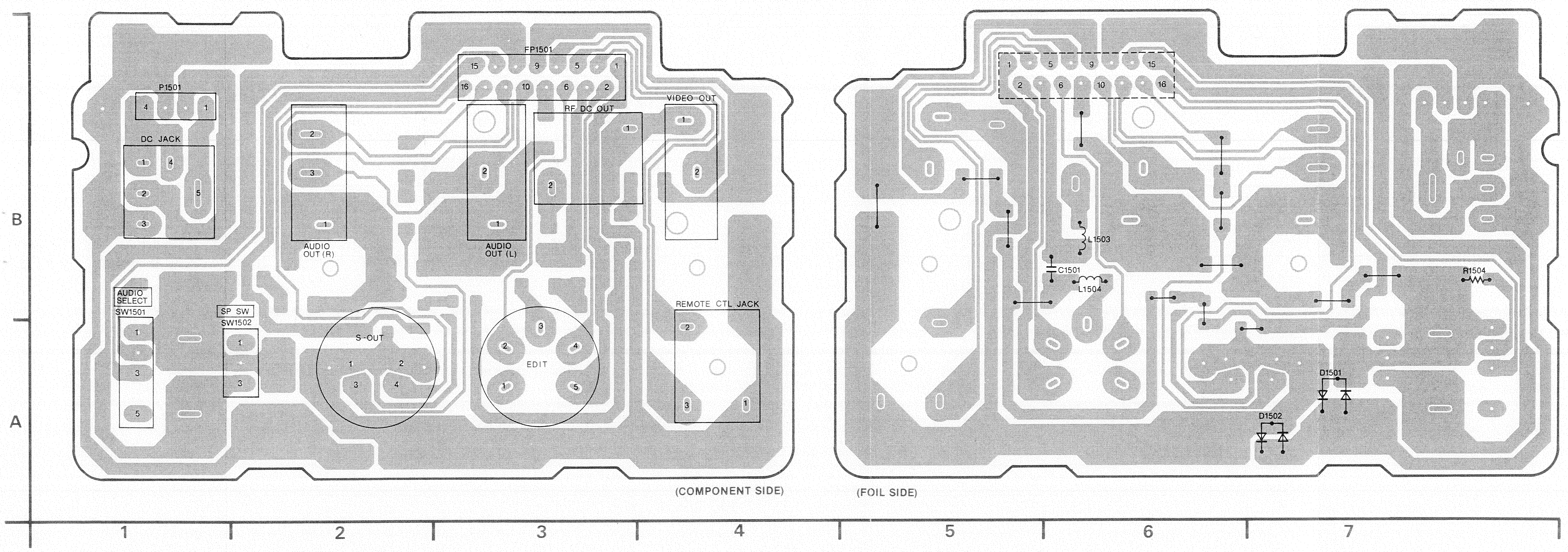

P1501
4
1
DC JACK
AUDIO OUT (R)
AUDIO SELECT
SW1501
SP SW
SW1502
S-OUT
B
A
1
2

19. AV JACK (B) C.B.A. (VEP03988A)


P1602
4
1
F1601
Z1601
L1605
L1602
B
A
1
2

Back Page:
MAIN C.B.A. Section

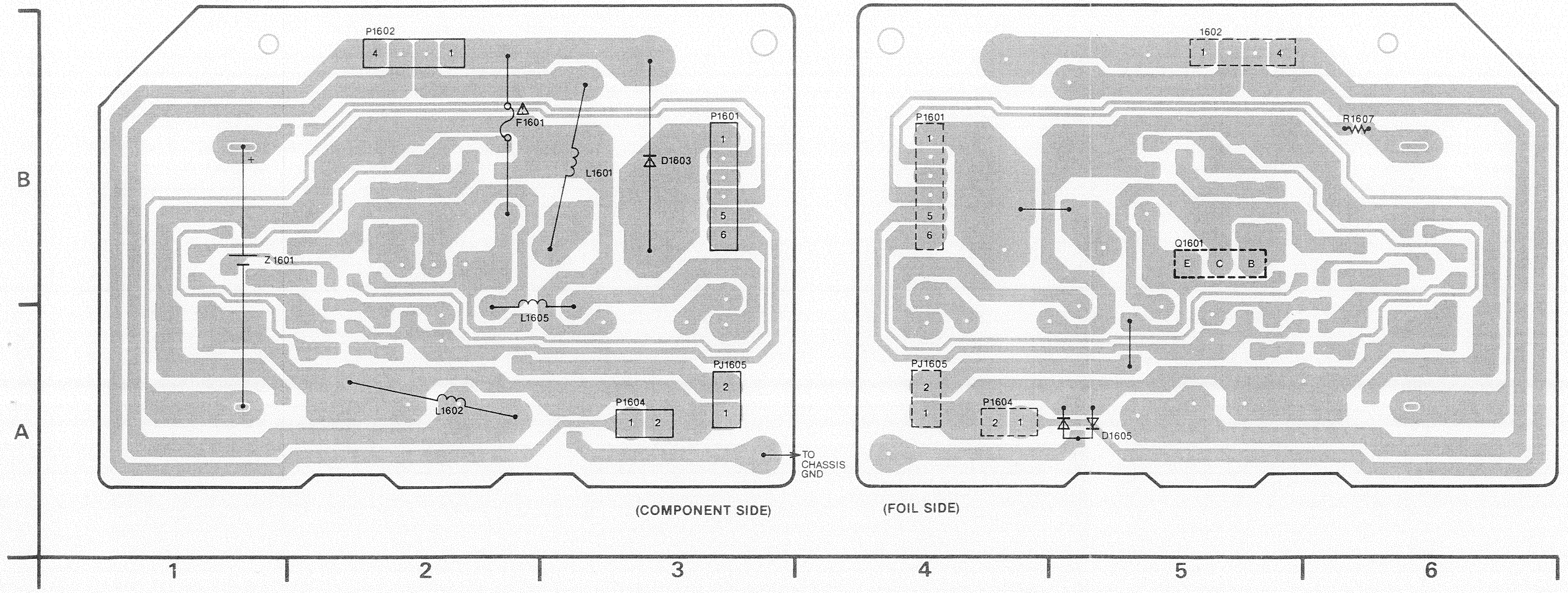
18. AV JACK (A) C.B.A. (VEP03946A)


FP1501
15
9
5
1
16
10
6
2
P1501
4
1
DC JACK
1
4
2
5
3
2
3
1
AUDIO OUT (R)
2
1
AUDIO OUT (L)
RF DC OUT
1
2
VIDEO OUT
1
2
AUDIO SELECT
SW1501
1
3
5
SP SW
SW1502
1
3
S-OUT
1
2
3
4
EDIT
3
2
4
1
5
REMOTE CTL JACK
2
3
1
1
5
9
15
2
6
10
16
L1503
C1501
L1504
R1504
D1501
D1502
B
A
C
1
2
3
4
5
6
7

(COMPONENT SIDE)

(FOIL SIDE)

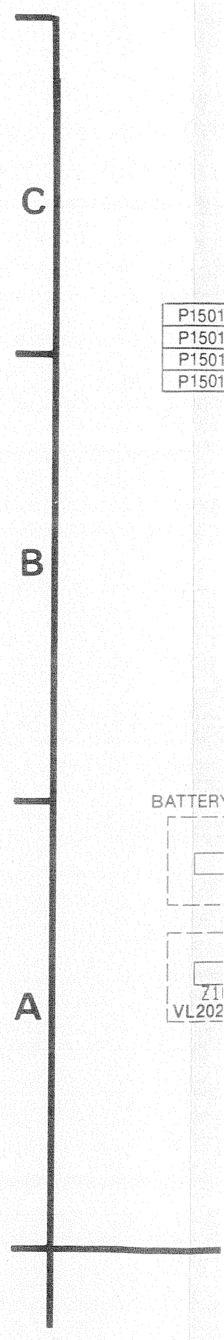
19. AV JACK (B) C.B.A. (VEP03988A)

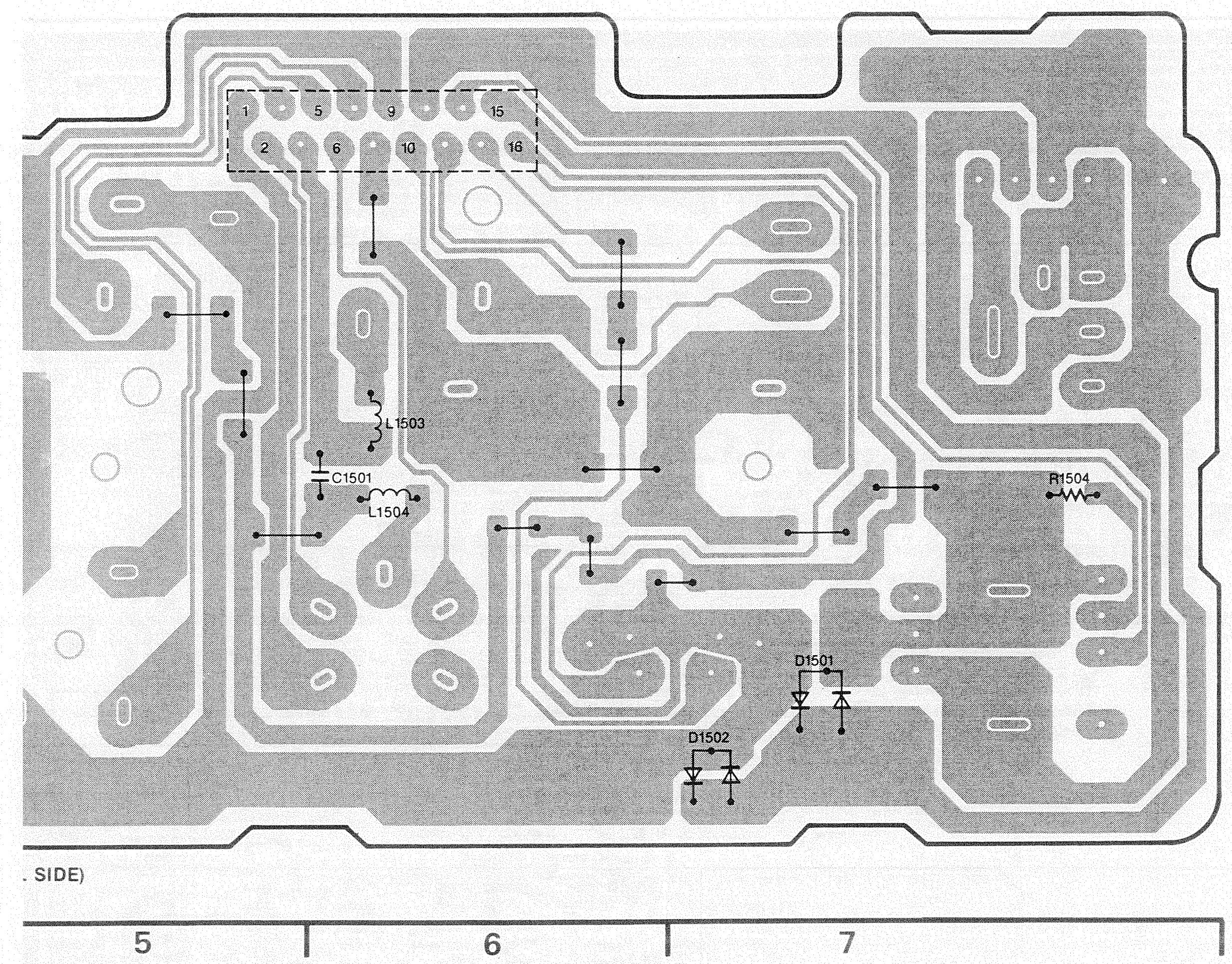

P1602
4
1
F1601
L1601
D1603
P1601
1
5
6
+
Z1601
L1605
PJ1605
2
1
L1602
P1604
1
2
TO CHASSIS GND
1602
1
4
R1607
P1601
1
5
6
Q1601
E
C
B
PJ1605
2
1
P1604
2
1
D1605
B
A
1
2
3
4
5
6

(COMPONENT SIDE)

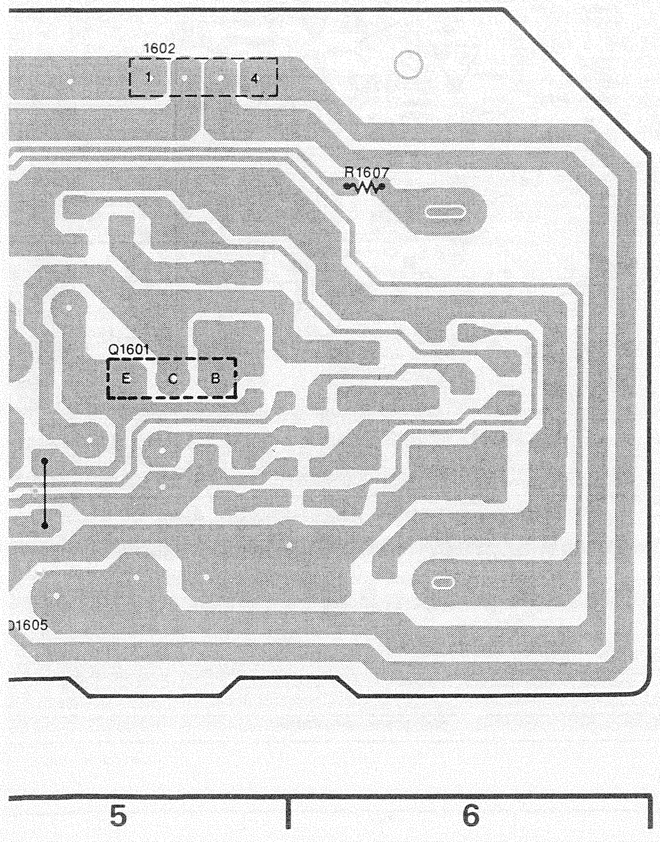
(FOIL SIDE)

20. AV JA

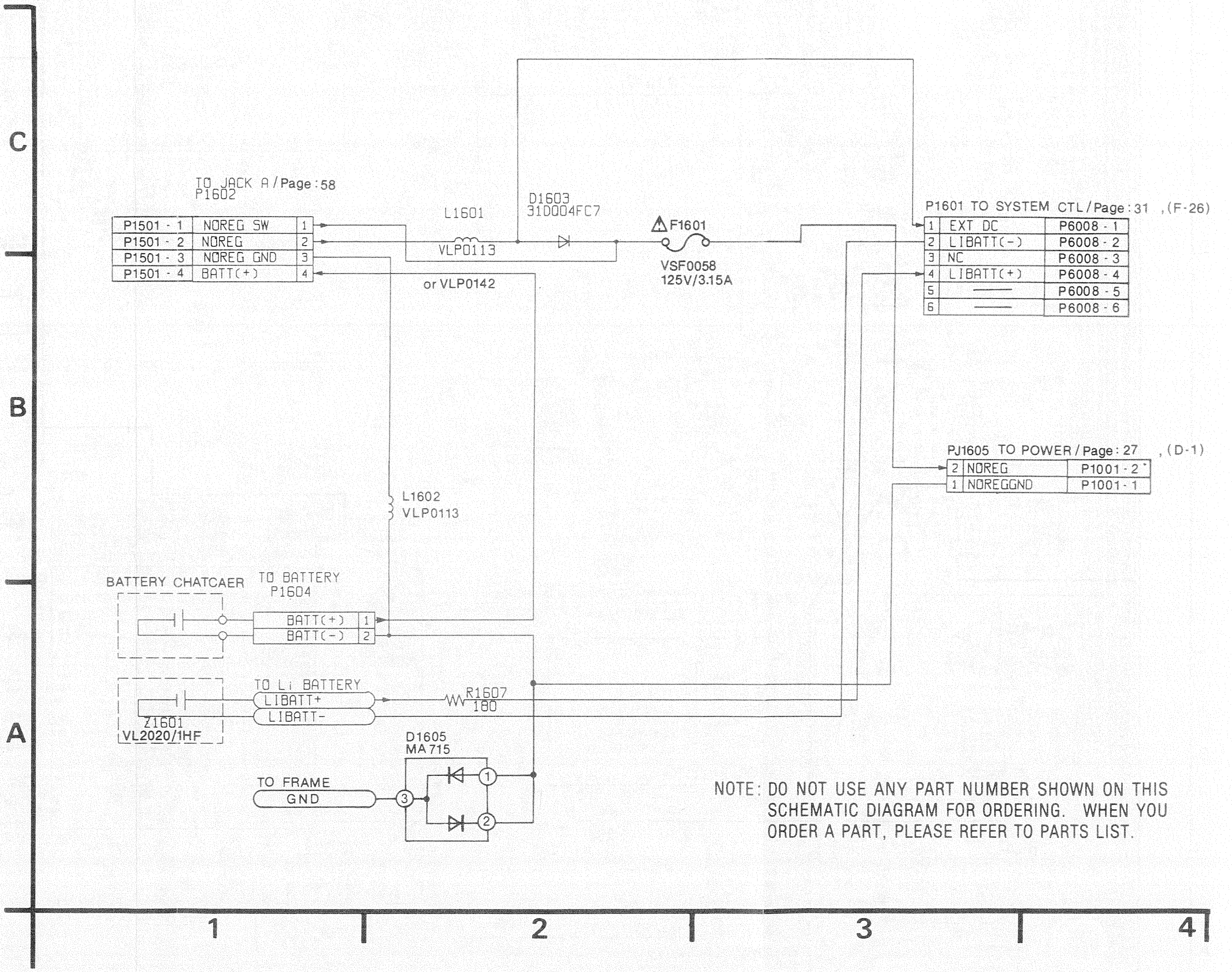

C
B
A
P1501
P1501
P1501
P1501
BATTER
Z1
VL202


1
5
9
15
2
6
10
16
L1503
C1501
L1504
R1504
D1501
D1502
5
6
7

. SIDE)

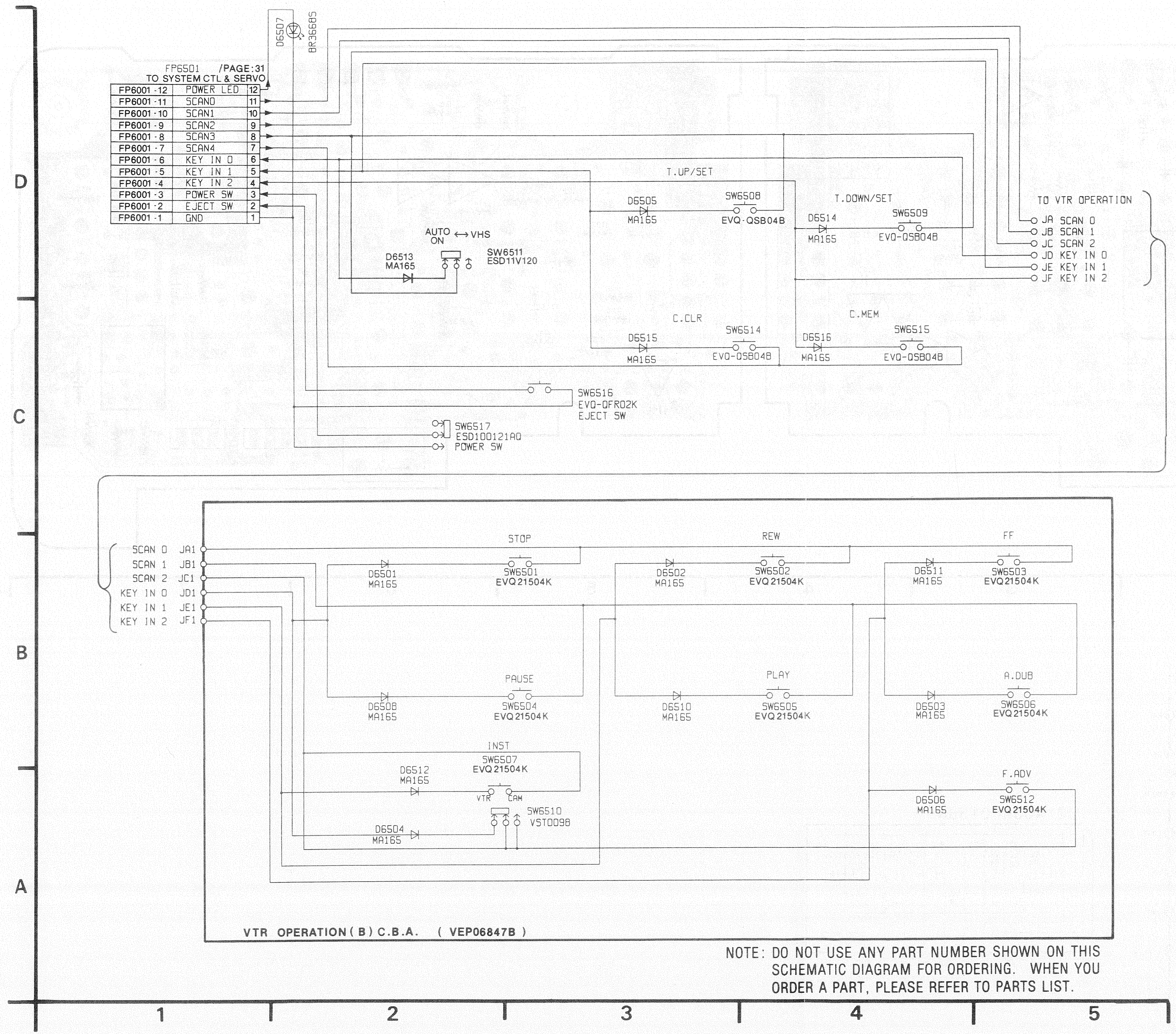

1602
1
4
R1607
Q1601
E
C
B
01605
5
6

20. AV JACK (B) SCHEMATIC DIAGRAM


C
B
A
1
2
3
4
TO JACK A / Page : 58
P1602
P1501 - 1
NOREG SW
1
P1501 - 2
NOREG
2
P1501 - 3
NOREG GND
3
P1501 - 4
BATT(+)
4
L1601
VLP0113
or VLP0142
D1603
31D004FC7
F1601
VSF0058
125V/3.15A
P1601 TO SYSTEM CTL / Page : 31 , (F-26)
1 EXT DC P6008 - 1
2 LIBATT(-) P6008 - 2
3 NC P6008 - 3
4 LIBATT(+) P6008 - 4
5 P6008 - 5
6 P6008 - 6
PJ1605 TO POWER / Page : 27 , (D-1)
2 NOREG P1001 - 2
1 NOREGGND P1001 - 1
L1602
VLP0113
BATTERY CHATCAER
TO BATTERY
P1604
BATT(+) 1
BATT(-) 2
TO Li BATTERY
LIBATT+
LIBATT-
Z1601
VL2020/1HF
R1607
180
D1605
MA 715
TO FRAME
GND
1
2
3

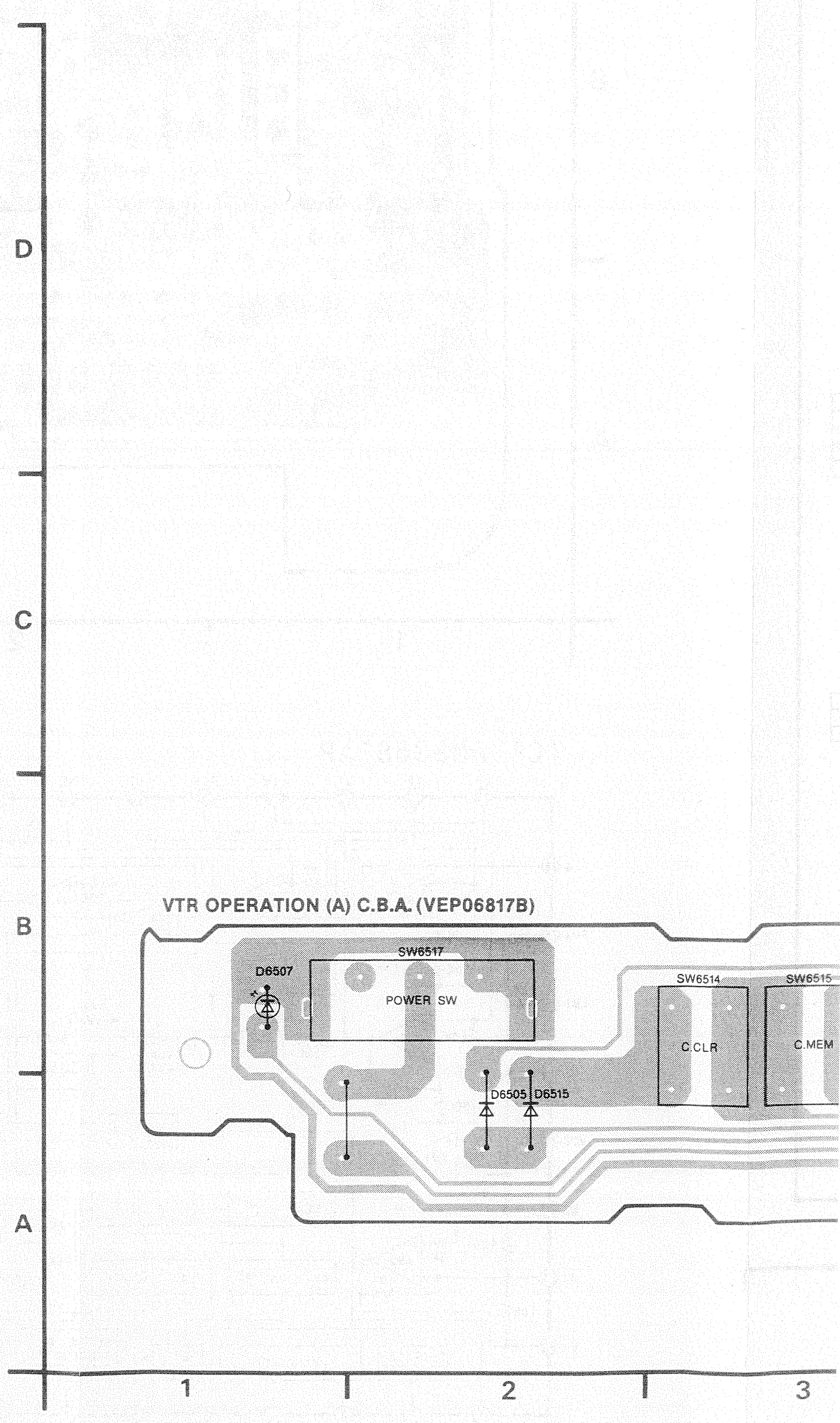
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

21. VTR OPERATION SCHEMATIC DIAGRAM

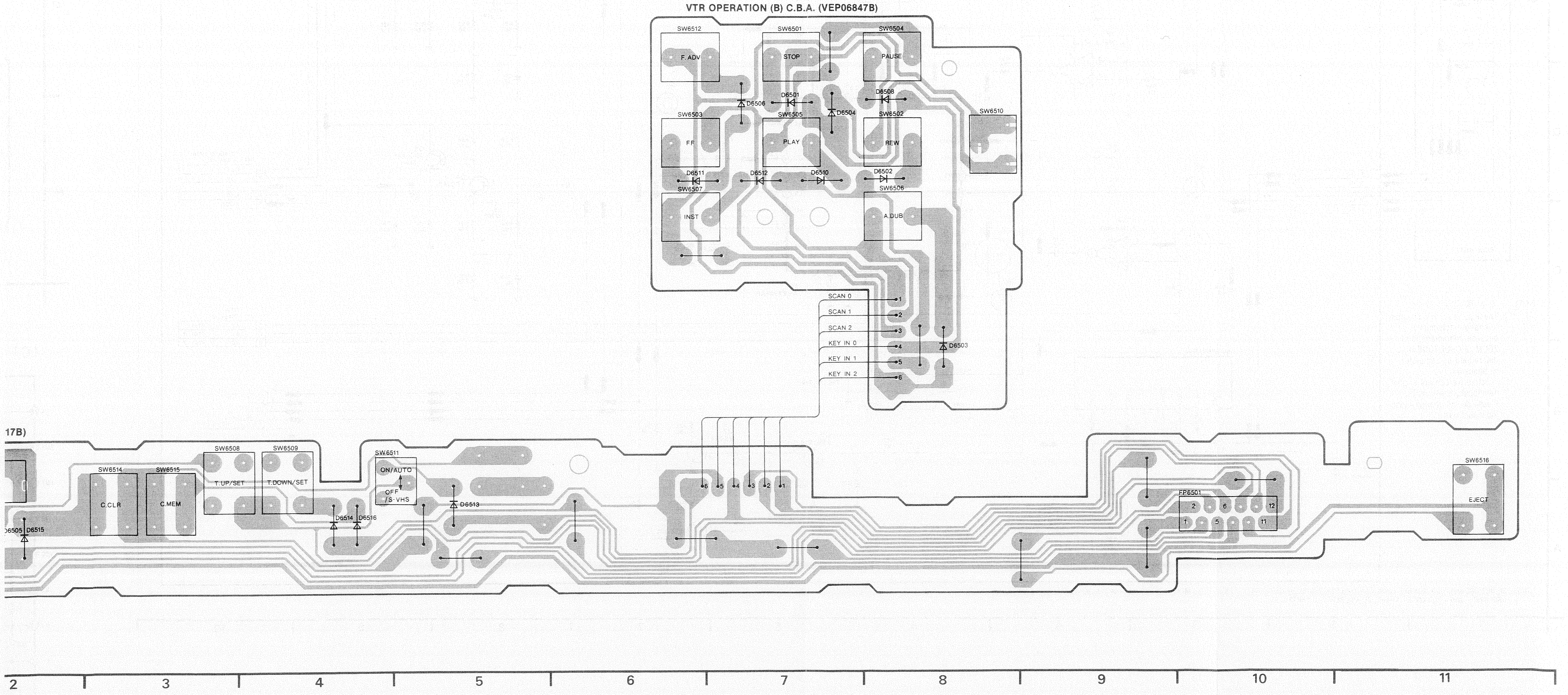

D
C
B
A
1
2
3
4
5
D6507
BR3668S
FP6501 /PAGE:31
TO SYSTEM CTL & SERVO
FP6001 -12 POWER LED 12
FP6001 -11 SCAN0 11
FP6001 -10 SCAN1 10
FP6001 -9 SCAN2 9
FP6001 -8 SCAN3 8
FP6001 -7 SCAN4 7
FP6001 -6 KEY IN 0 6
FP6001 -5 KEY IN 1 5
FP6001 -4 KEY IN 2 4
FP6001 -3 POWER SW 3
FP6001 -2 EJECT SW 2
FP6001 -1 GND 1
T.UP/SET
D6505
MA165
SW6508
EVQ-QSB04B
T.DOWN/SET
D6514
MA165
SW6509
EVQ-QSB04B
TO VTR OPERATION
JA SCAN 0
JB SCAN 1
JC SCAN 2
JD KEY IN 0
JE KEY IN 1
JF KEY IN 2
AUTO ON ⟷ VHS
D6513
MA165
SW6511
ESD11V120
C.CLR
D6515
MA165
SW6514
EVQ-QSB04B
C.MEM
D6516
MA165
SW6515
EVQ-QSB04B
SW6516
EVQ-QFR02K
EJECT SW
SW6517
ESD100121A0
POWER SW
SCAN 0 JA1
SCAN 1 JB1
SCAN 2 JC1
KEY IN 0 JD1
KEY IN 1 JE1
KEY IN 2 JF1
STOP
D6501
MA165
SW6501
EVQ21504K
REW
D6502
MA165
SW6502
EVQ21504K
FF
D6511
MA165
SW6503
EVQ21504K
PAUSE
D6508
MA165
SW6504
EVQ21504K
PLAY
D6510
MA165
SW6505
EVQ21504K
A.DUB
D6503
MA165
SW6506
EVQ21504K
INST
SW6507
EVQ21504K
D6512
MA165
VTR
CAM
SW6510
VST0098
D6504
MA165
F.ADV
D6506
MA165
SW6512
EVQ21504K
VTR OPERATION (B) C.B.A. (VEP06847B)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

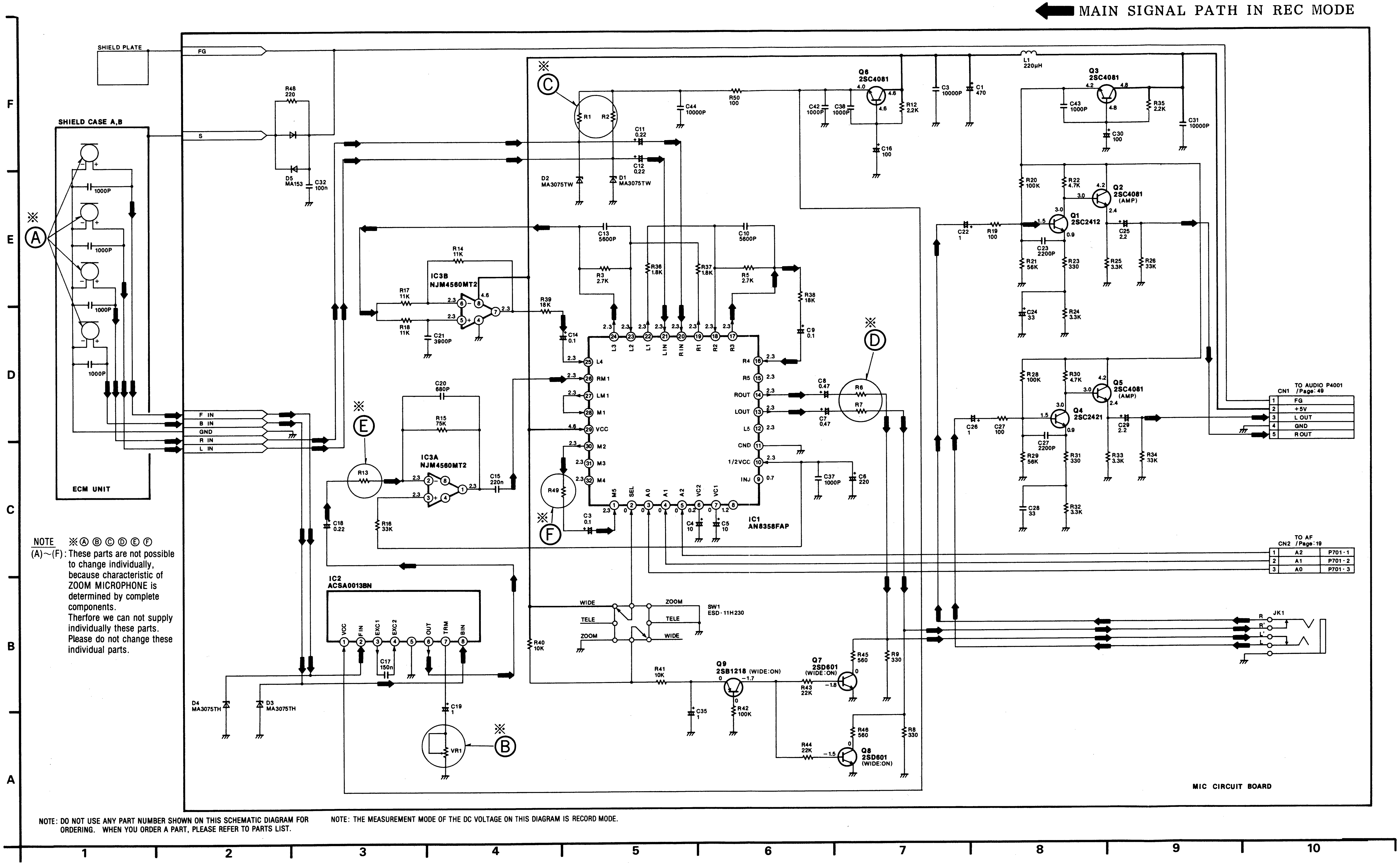
22. VTR OPERATION (A) C.B.A. (VEP06817


D
C
B
A
1
2
3
VTR OPERATION (A) C.B.A. (VEP06817B)
SW6517
D6507
POWER SW
SW6514
SW6515
C.CLR
C.MEM
D6505
D6515

C.B.A. (VEP06817B) & VTR OPERATION (B) C.B.A. (VEP06847B)


VTR OPERATION (B) C.B.A. (VEP06847B)
SW6512
F. ADV
SW6501
STOP
SW6504
PAUSE
D6506
D6501
D6504
D6508
SW6503
FF
SW6505
PLAY
SW6502
REW
SW6510
D6511
D6512
D6510
D6502
SW6507
INST
SW6506
A.DUB
SCAN 0
SCAN 1
SCAN 2
KEY IN 0
KEY IN 1
KEY IN 2
1
2
3
4
5
6
D6503
17B)
SW6514
C.CLR
SW6515
C.MEM
SW6508
T.UP/SET
SW6509
T.DOWN/SET
SW6511
ON/AUTO
OFF /S-VHS
D6513
D6514
D6516
D6505
D6515
FP6501
2
6
12
1
5
11
SW6516
EJECT
2
3
4
5
6
7
8
9
10
11

23. MIC SCHEMATIC DIAGRAM

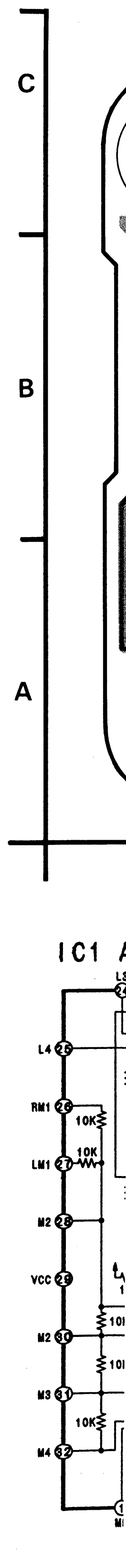

MAIN SIGNAL PATH IN REC MODE
SHIELD PLATE
FG
S
SHIELD CASE A,B
ECM UNIT
1000P
F IN
B IN
GND
R IN
L IN
R48 220
D5 MA153
C32 100n
※ Ⓐ
※ Ⓑ
※ Ⓒ
※ Ⓓ
※ Ⓔ
※ Ⓕ
R1
R2
C11 0.22
C12 0.22
D2 MA3075TW
D1 MA3075TW
C44 10000P
R50 100
Q6 2SC4081
C42 1000P
C38 1000P
R12 2.2K
C16 100
C3 10000P
C1 470
L1 220μH
Q3 2SC4081
C43 1000P
R35 2.2K
C30 100
C31 10000P
R14 11K
IC3B NJM4560MT2
R17 11K
R18 11K
C21 3900P
R39 18K
C14 0.1
C13 5600P
R3 2.7K
R36 1.8K
R37 1.8K
C10 5600P
R5 2.7K
R38 18K
C9 0.1
R20 100K
R22 4.7K
Q2 2SC4081 (AMP)
Q1 2SC2412
C22 1
R19 100
C25 2.2
C23 2200P
R21 56K
R23 330
R25 3.3K
R26 33K
C24 33
R24 3.3K
R28 100K
R30 4.7K
Q5 2SC4081 (AMP)
Q4 2SC2421
C26 1
C27 100
C29 2.2
C27 2200P
R29 56K
R31 330
R33 3.3K
R34 33K
C28 33
R32 3.3K
L3 L2 L1 LIN RIN R1 R2 R3
L4 RM1 LM1 M1 VCC M2 M3 M4
R4 R5 ROUT LOUT L5 GND 1/2VCC INJ
M5 SEL A0 A1 A2 VC2 VC1
IC1 AN8358FAP
C8 0.47
C7 0.47
R6
R7
C37 1000P
C6 220
C4 10
C5 10
C20 680P
R15 75K
IC3A NJM4560MT2
R13
C15 220n
R16 33K
C18 0.22
R49
C3 0.1
TO AUDIO P4001 /Page: 49
CN1
1 FG
2 +5V
3 L OUT
4 GND
5 R OUT
TO AF
CN2 /Page:19
1 A2 P701-1
2 A1 P701-2
3 A0 P701-3
IC2 ACSA0013BN
VCC FIN EXC1 EXC2 OUT TRM BIN
C17 150n
C19 1
VR1
D4 MA3075TH
D3 MA3075TH
WIDE
TELE
ZOOM
SW1 ESD-11H230
R40 10K
R41 10K
Q9 2SB1218 (WIDE:ON)
C35 1
R42 100K
Q7 2SD601 (WIDE:ON)
R43 22K
R45 560
R9 330
R46 560
R8 330
R44 22K
Q8 2SD601 (WIDE:ON)
JK1
R
R'
L'
L
MIC CIRCUIT BOARD
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10

NOTE ※Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ
(A)~(F): These parts are not possible to change individually, because characteristic of ZOOM MICROPHONE is determined by complete components. Therfore we can not supply individually these parts. Please do not change these individual parts.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

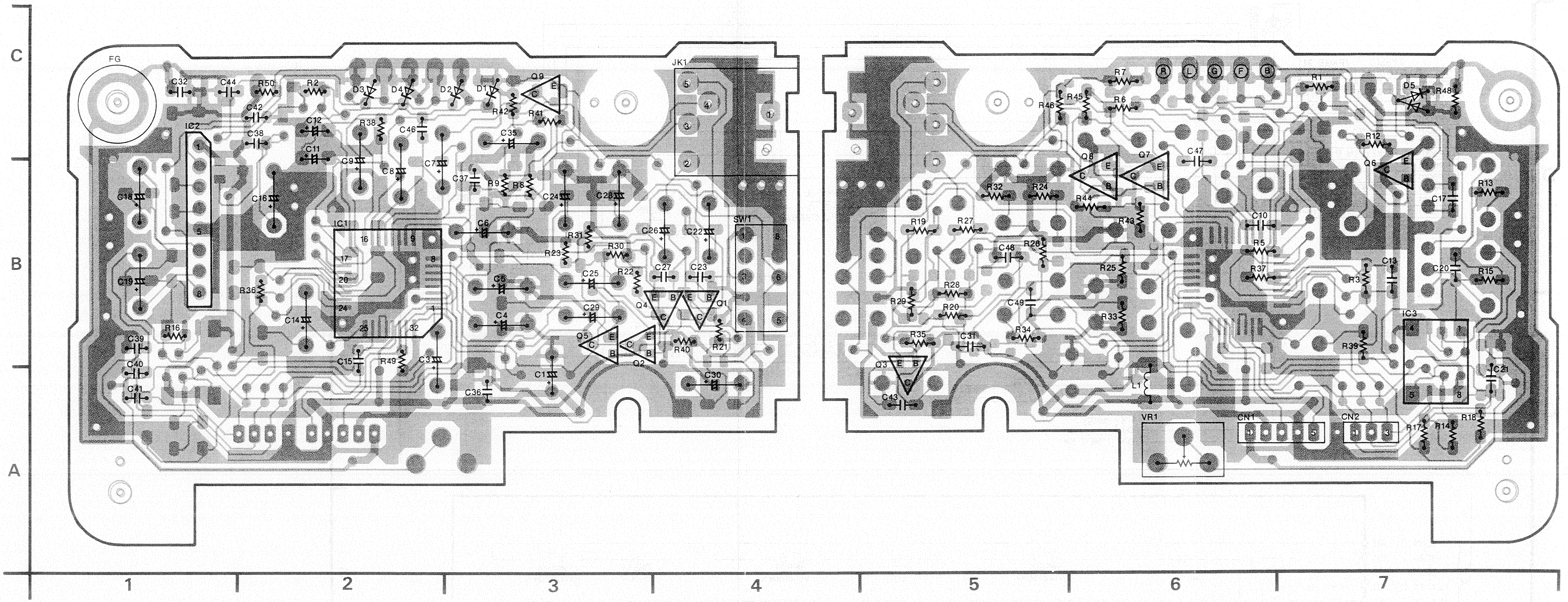
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS RECORD MODE.

24. MIC

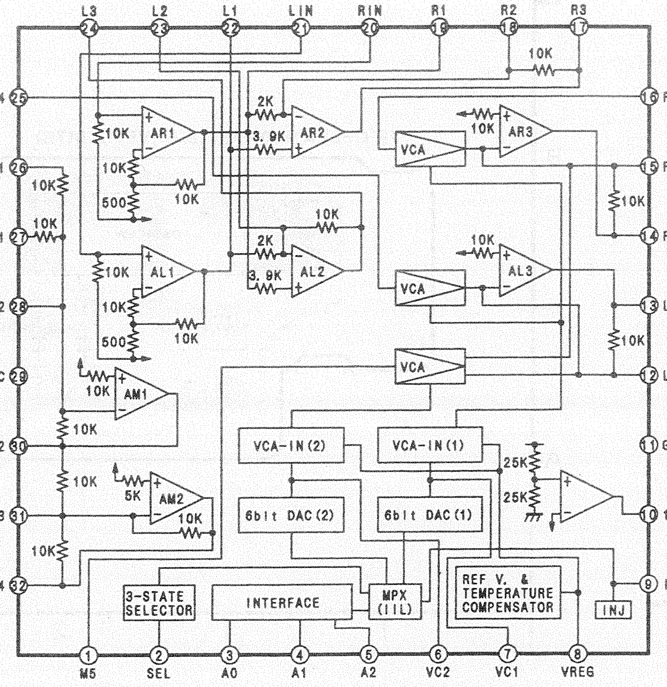

C
B
A
IC1
L4
RM1
LM1
M2
VCC
M2
M3
M4
10K

Back Page:
VTR OPERATION Section

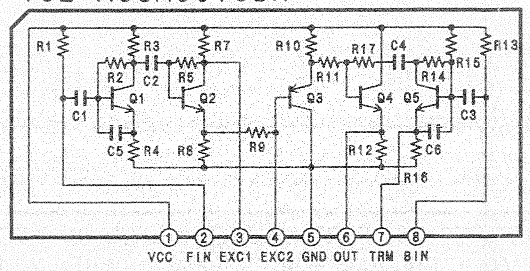
24. MIC CIRCUIT BOARD


C
B
A
1
2
3
4
5
6
7
FG
C32
C44
R50
R2
D3
D4
D2
D1
Q9
JK1
C42
C38
IC2
C12
C11
R38
C46
C35
R42
R41
C9
C8
C7
C37
R9
R8
C24
C28
C18
C16
IC1
C6
R31
R30
C26
C22
SW1
R23
C25
R22
C27
C23
C19
R36
C5
C14
C4
C29
Q4
Q1
R16
C39
Q5
Q2
R40
R21
C40
C15
R49
C3
C1
C30
C41
C36
R7
R
L
G
F
B
R1
D5
R48
R46
R45
R6
R12
Q8
Q7
C47
Q6
R32
R24
R44
R43
R13
C17
R19
R27
C10
C48
R26
R5
R25
R37
R3
C13
C20
R15
R28
R29
R20
C49
R33
IC3
R35
C31
R34
R39
Q3
L1
C21
C43
VR1
CN1
CN2
R17
R14
R18

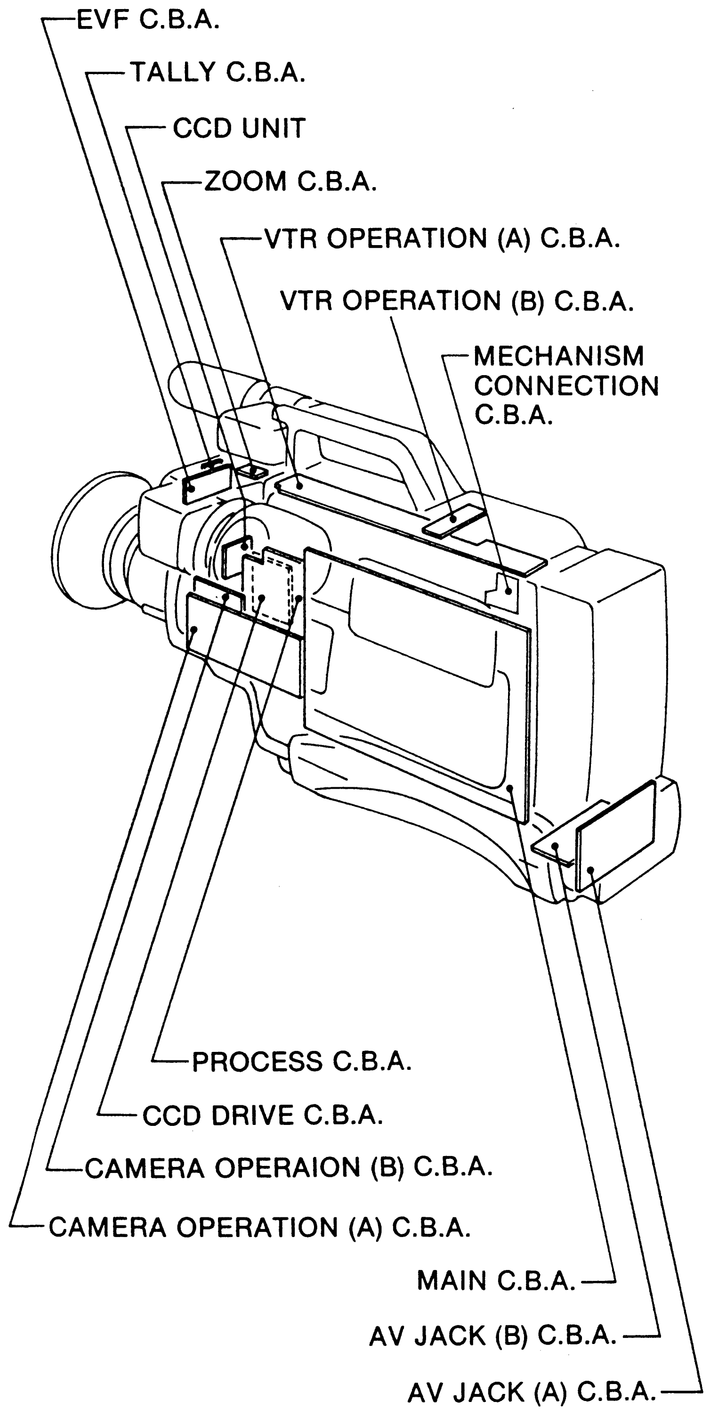
IC1 AN8358FAP


L3
L2
L1
LIN
RIN
R1
R2
R3
L4
RM1
LM1
M2
VCC
M2
M3
M4
R4
R5
ROUT
LOUT
L5
GND
1/2VCC
INJ
M5
SEL
A0
A1
A2
VC2
VC1
VREG
AR1
AR2
AR3
AL1
AL2
AL3
AM1
AM2
VCA
VCA
VCA
VCA-IN (2)
VCA-IN (1)
6bit DAC (2)
6bit DAC (1)
3-STATE SELECTOR
INTERFACE
MPX (IIL)
REF V. & TEMPERATURE COMPENSATOR
INJ
10K
2K
3.9K
500
5K
25K

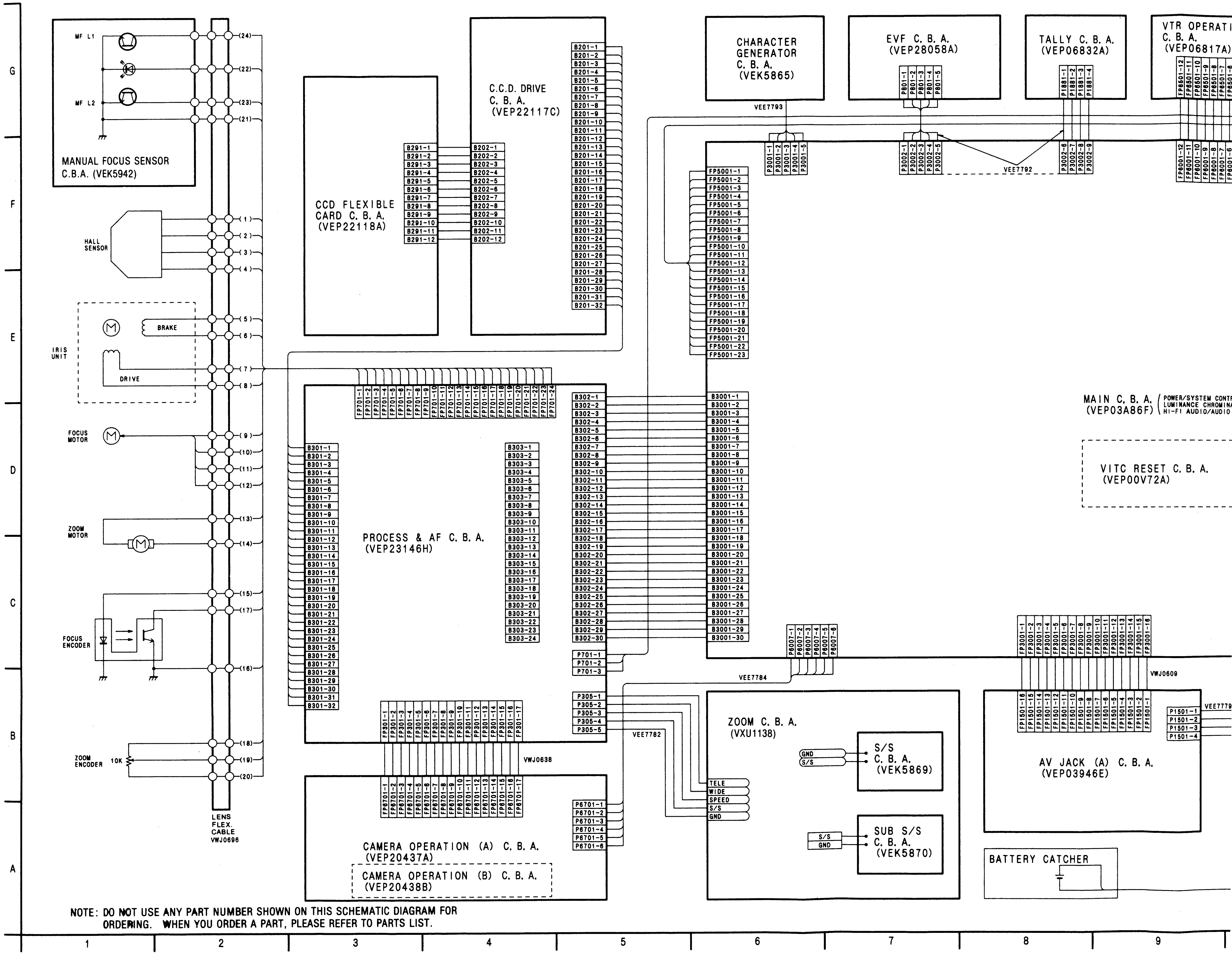
IC2 ACSA0013BN


R1
R2
R3
R4
R5
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
C1
C2
C3
C4
C5
C6
Q1
Q2
Q3
Q4
Q5
VCC
FIN
EXC1
EXC2
GND
OUT
TRM
BIN

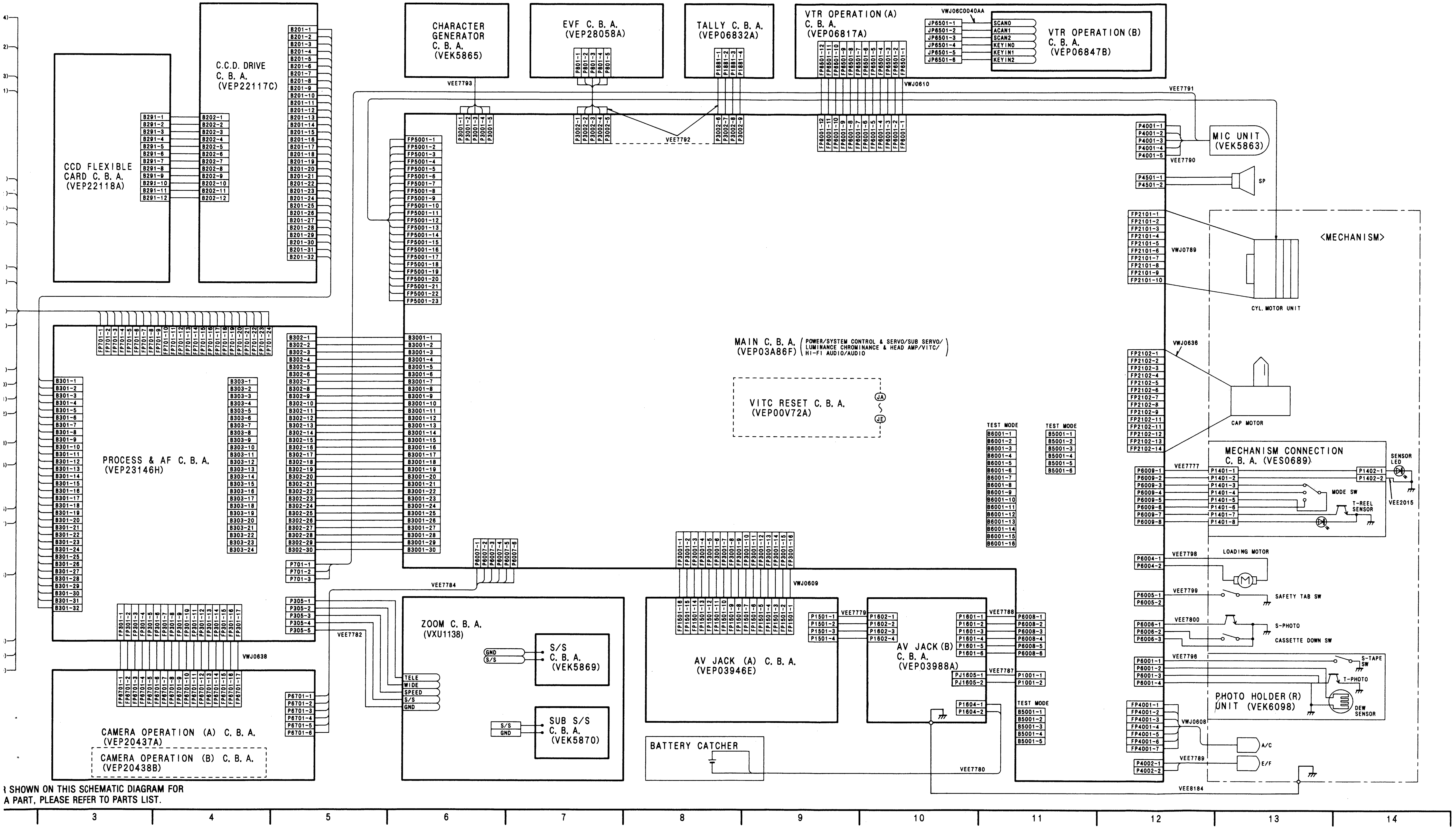
25. CIRCUIT BOARD LAYOUT


EVF C.B.A.
TALLY C.B.A.
CCD UNIT
ZOOM C.B.A.
VTR OPERATION (A) C.B.A.
VTR OPERATION (B) C.B.A.
MECHANISM CONNECTION C.B.A.
PROCESS C.B.A.
CCD DRIVE C.B.A.
CAMERA OPERAION (B) C.B.A.
CAMERA OPERATION (A) C.B.A.
MAIN C.B.A.
AV JACK (B) C.B.A.
AV JACK (A) C.B.A.

26. INTERCONNECTION SCHEMATIC DIAGRAM


MANUAL FOCUS SENSOR C.B.A. (VEK5942)
MF L1
MF L2
HALL SENSOR
IRIS UNIT
BRAKE
DRIVE
FOCUS MOTOR
ZOOM MOTOR
FOCUS ENCODER
ZOOM ENCODER
10K
LENS FLEX. CABLE VWJ0696
CCD FLEXIBLE CARD C. B. A. (VEP22118A)
C.C.D. DRIVE C. B. A. (VEP22117C)
PROCESS & AF C. B. A. (VEP23146H)
CAMERA OPERATION (A) C. B. A. (VEP20437A)
CAMERA OPERATION (B) C. B. A. (VEP20438B)
VWJ0638
CHARACTER GENERATOR C. B. A. (VEK5865)
VEE7793
EVF C. B. A. (VEP28058A)
VEE7792
TALLY C. B. A. (VEP06832A)
VTR OPERATI C. B. A. (VEP06817A)
MAIN C. B. A. (VEP03A86F) (POWER/SYSTEM CONTR LUMINANCE CHROMIN HI-FI AUDIO/AUDIO
VITC RESET C. B. A. (VEP00V72A)
VEE7784
VEE7782
ZOOM C. B. A. (VXU1138)
TELE
WIDE
SPEED
S/S
GND
S/S C. B. A. (VEK5869)
SUB S/S C. B. A. (VEK5870)
VWJ0609
AV JACK (A) C. B. A. (VEP03946E)
VEE7779
BATTERY CATCHER
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.


CCD FLEXIBLE CARD C. B. A. (VEP22118A)
C.C.D. DRIVE C. B. A. (VEP22117C)
CHARACTER GENERATOR C. B. A. (VEK5865)
EVF C. B. A. (VEP28058A)
TALLY C. B. A. (VEP06832A)
VTR OPERATION (A) C. B. A. (VEP06817A)
VTR OPERATION (B) C. B. A. (VEP06847B)
VWJ06C0040AA
SCAN0
ACAN1
SCAN2
KEYIN0
KEYIN1
KEYIN2
VWJ0610
VEE7791
VEE7793
VEE7792
MIC UNIT (VEK5863)
VEE7790
SP
<MECHANISM>
VWJ0789
CYL. MOTOR UNIT
VWJ0636
CAP MOTOR
MAIN C. B. A. (VEP03A86F) (POWER/SYSTEM CONTROL & SERVO/SUB SERVO/ LUMINANCE CHROMINANCE & HEAD AMP/VITC/ HI-FI AUDIO/AUDIO)
VITC RESET C. B. A. (VEP00V72A)
JA
JE
TEST MODE
PROCESS & AF C. B. A. (VEP23146H)
VWJ0638
CAMERA OPERATION (A) C. B. A. (VEP20437A)
CAMERA OPERATION (B) C. B. A. (VEP20438B)
VEE7784
VEE7782
ZOOM C. B. A. (VXU1138)
S/S C. B. A. (VEK5869)
SUB S/S C. B. A. (VEK5870)
GND
S/S
TELE
WIDE
SPEED
VWJ0609
AV JACK (A) C. B. A. (VEP03946E)
VEE7779
AV JACK (B) C. B. A. (VEP03988A)
VEE7788
VEE7787
BATTERY CATCHER
VEE7780
MECHANISM CONNECTION C. B. A. (VES0689)
VEE7777
SENSOR LED
MODE SW
T-REEL SENSOR
VEE2015
VEE7798
LOADING MOTOR
VEE7799
SAFETY TAB SW
VEE7800
S-PHOTO
CASSETTE DOWN SW
VEE7796
S-TAPE SW
T-PHOTO
PHOTO HOLDER (R) UNIT (VEK6098)
DEW SENSOR
VWJ0608
A/C
E/F
VEE7789
VEE8184
3
4
5
6
7
8
9
10
11
12
13
14

SHOWN ON THIS SCHEMATIC DIAGRAM FOR
A PART, PLEASE REFER TO PARTS LIST.

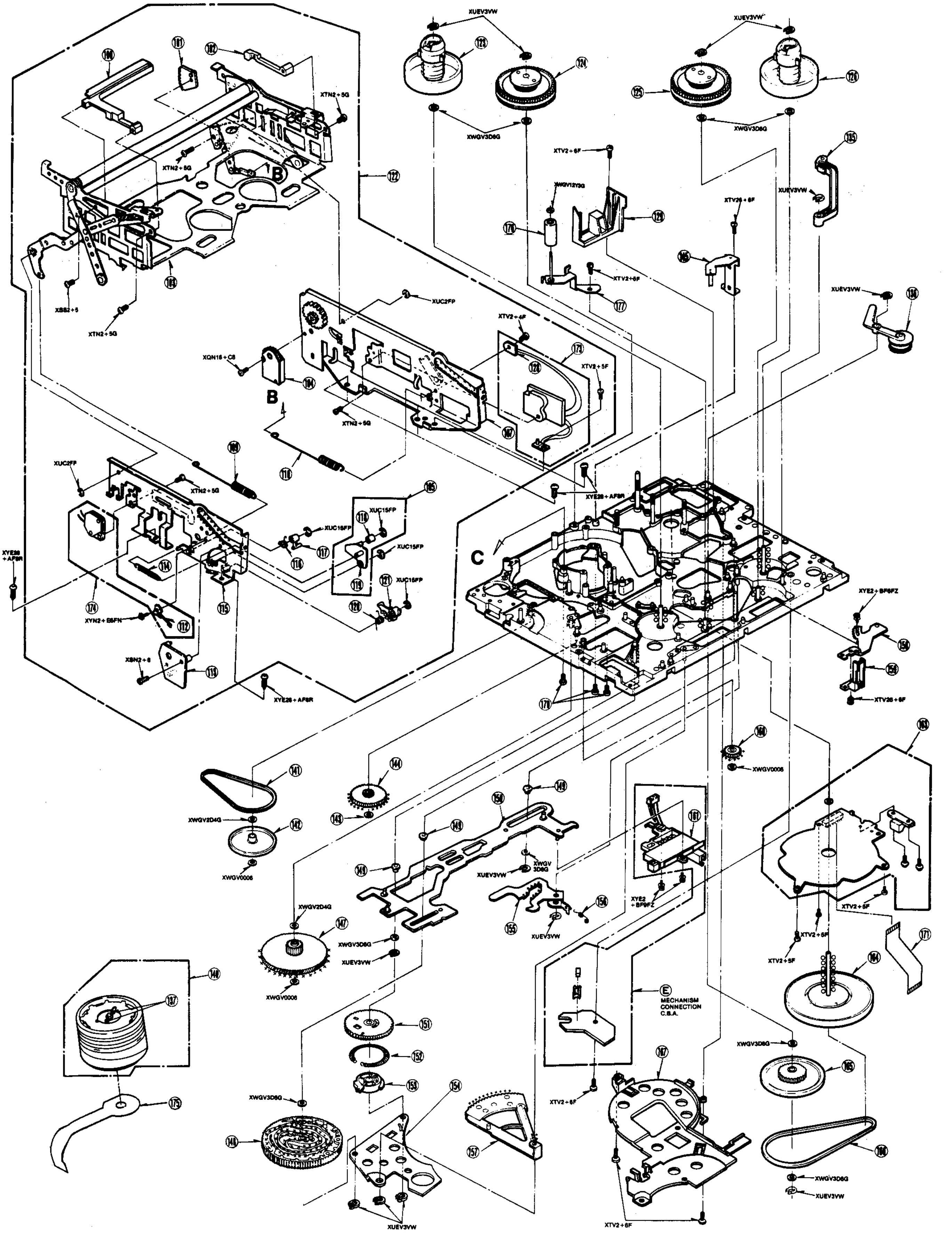
SECTION 5

EXPLODED VIEWS & REPLACEMENT PARTS LISTS

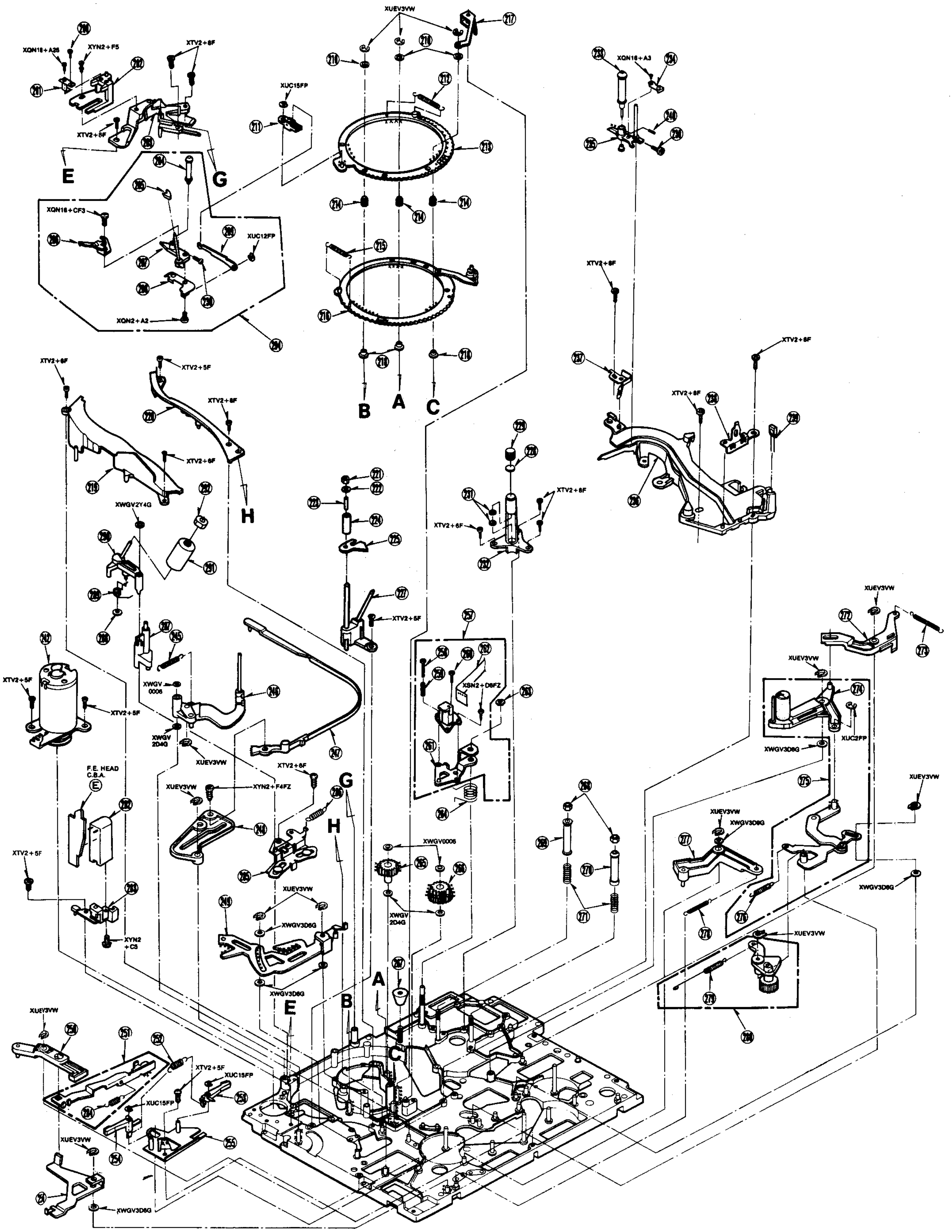
CONTENTS

5-1. EXPLODED VIEWS ······ 5-1
    1) VTR MECHANISM SECTION (1) ······ 5-1
    2) VTR MECHANISM SECTION (2) ······ 5-2
    3) CAMERA LENS SECTION ······ 5-3
    4) FRAME & CASING PARTS SECTION (1) ······ 5-4
    5) FRAME & CASING PARTS SECTION (2) ······ 5-5
    6) EVF SECTION ······ 5-6
    7) PACKING PARTS & ACCESSORIES SECTION ······ 5-7
5-2. MECHANICAL REPLACEMENT PARTS LIST ······ 5-8
5-3. ELECTRICAL REPLACEMENT PARTS LIST ······ 5-11

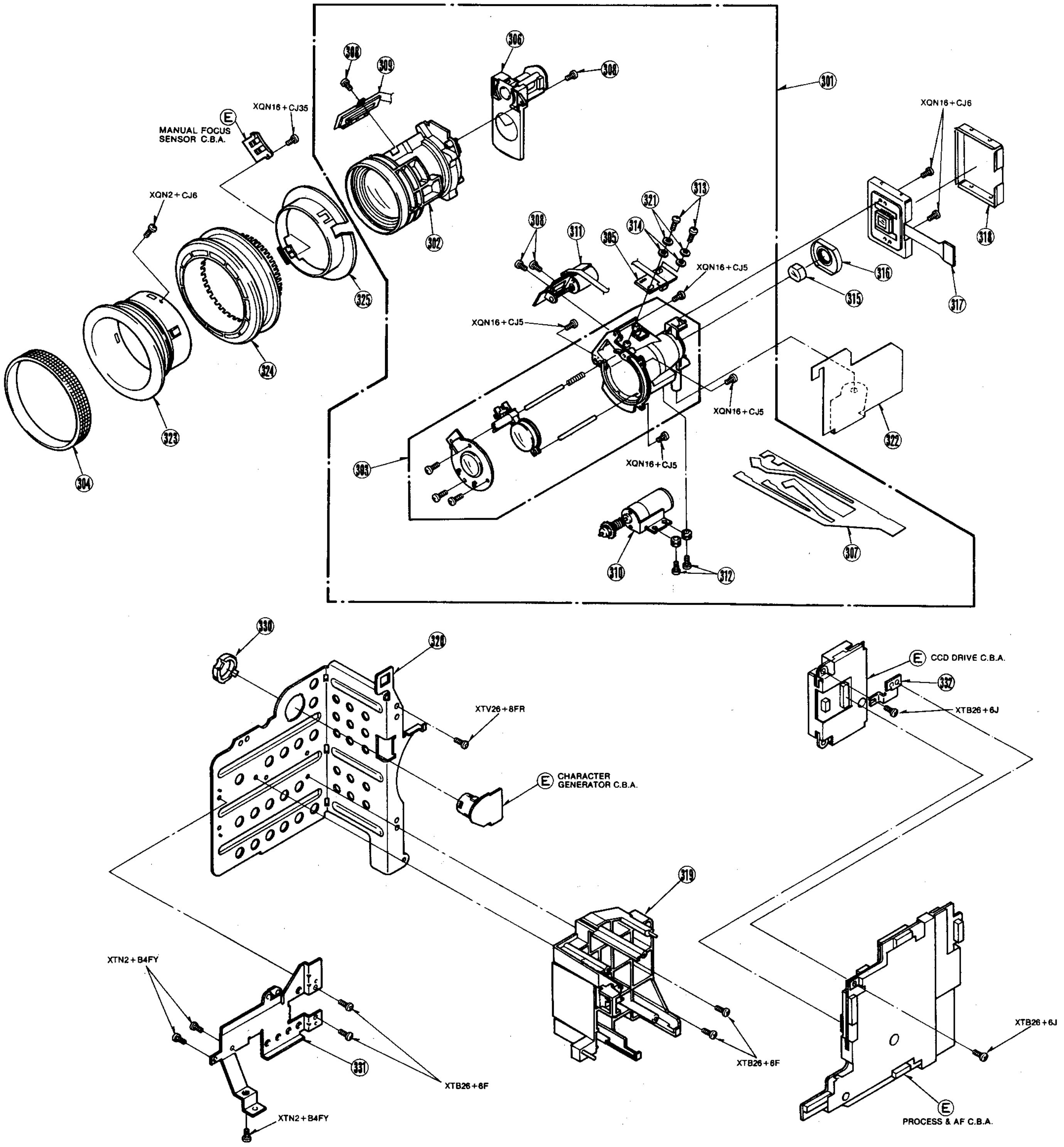
5-1. EXPLODED VIEWS & PARTS LISTS (1) VTR MECHANISM SECTION (1)


(100)
(101)
(102)
XTN2+5G
XTN2+5G
B
(122)
(103)
XSS2+5
XTN2+5G
XUEV3VW
(123)
(124)
XWGV3D6G
XUEV3VW
(125)
(126)
XWGV3D6G
(135)
XTV2+6F
XWGV12Y3G
(129)
(176)
XTV2+6F
(177)
XTV26+6F
XUEV3VW
(165)
XUEV3VW
(136)
XUC2FP
XQN15+C8
(104)
B
XTN2+5G
XTV2+4F
(173)
(128)
XTV2+5F
(107)
(109)
(110)
XUC2FP
XTN2+5G
XYE26+AF6R
(105)
(118)
XUC15FP
XUC15FP
(117)
(116)
XUC15FP
(119)
(121)
XUC15FP
(120)
C
XYE26
+AF6R
(114)
(174)
XYN2+E6FN
(112)
(115)
XSN2+6
(113)
XYE26+AF6R
XYE2+BF6FZ
(158)
(159)
XTV26+6F
(170)
(160)
XWGV0006
(163)
(141)
XWGV2D4G
(142)
XWGV0006
(144)
(143)
(149)
(150)
(149)
(149)
XWGV
3D6G
XUEV3VW
(161)
XYE2
+BF9FZ
(156)
(155)
XUEV3VW
XTV2+5F
XTV2+5F
XTV2+5F
(171)
(164)
XWGV2D4G
(147)
XWGV3D6G
XUEV3VW
XWGV0006
(140)
(137)
(E)
MECHANISM
CONNECTION
C.B.A.
(151)
(152)
(153)
(154)
XWGV3D6G
(165)
(167)
XTV2+6F
(175)
XWGV3D6G
(148)
(157)
(166)
XWGV3D6G
XUEV3VW
XUEV3VW
XTV2+6F

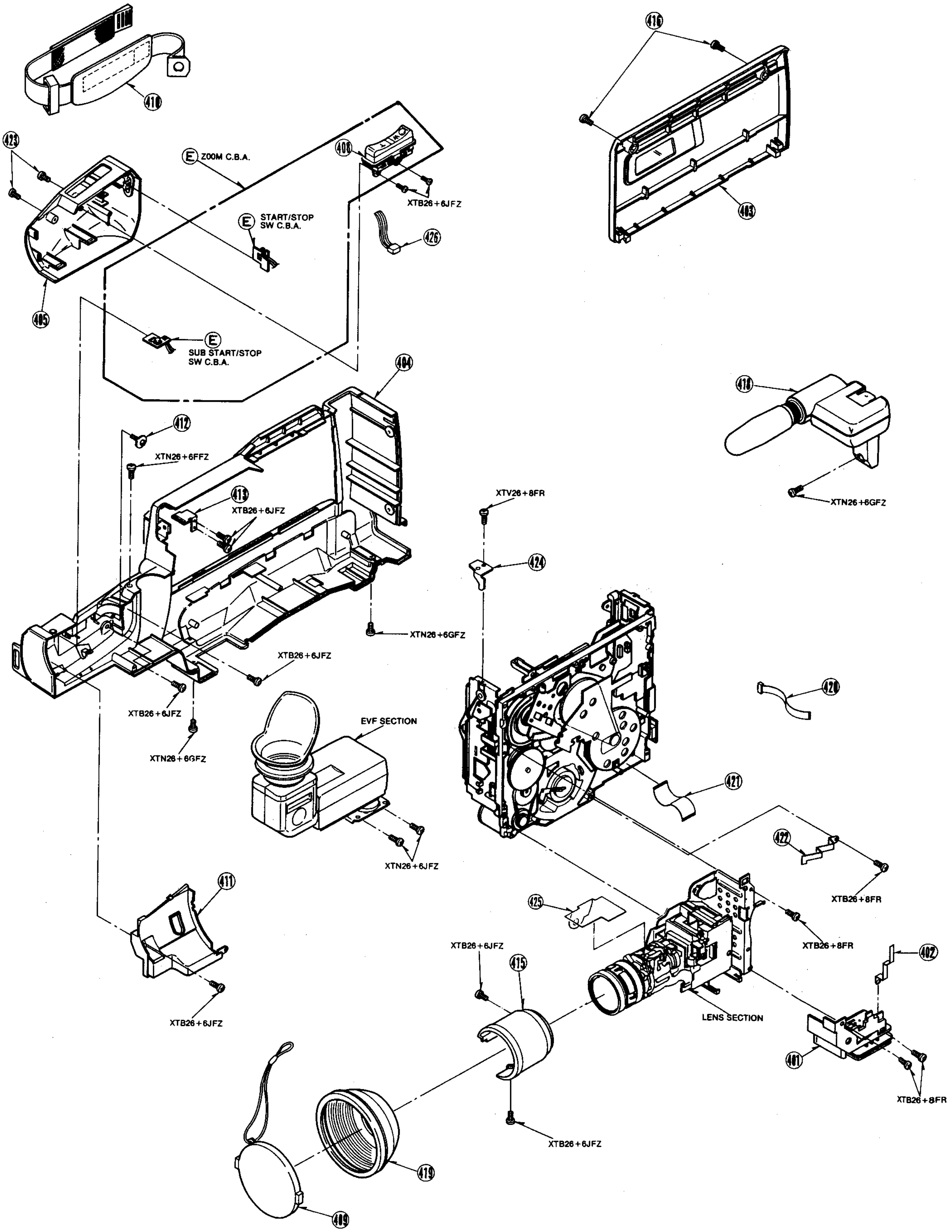
(2) VTR MECHANISM SECTION (2)


XQN16+A25
XYN2+F5
(201)
(202)
XTV2+8F
XTV2+8F
E
G
XQN16+CF3
XUC12FP
XQN2+A2
XUC15FP
(211)
XUEV3VW
(217)
(212)
(213)
(214)
(214)
(214)
(215)
(216)
(218)
B
A
C
XQN16+A3
(233)
(234)
(235)
(240)
XTV2+6F
(237)
XTV2+6F
(236)
XTV2+6F
XTV2+8F
XTV2+5F
(220)
XTV2+8F
XTV2+6F
(219)
H
XWGV2Y4G
(221)
(222)
(223)
(224)
(225)
(227)
XTV2+5F
(229)
(228)
(231)
XTV2+6F
XTV2+8F
(232)
(242)
XTV2+5F
XTV2+5F
(245)
XWGV 0006
(246)
(247)
XWGV 2D4G
XUEV3VW
F.E. HEAD C.B.A.
E
XUEV3VW
XYN2+F4FZ
(248)
XTV2+6F
G
H
XTV2+5F
XYN2 +C5
(249)
XUEV3VW
XWGV3D6G
XWGV3D6G
(257)
XSN2+D6FZ
(261)
(264)
XWGV0006
(265)
(266)
XWGV 2D4G
(267)
(268)
(269)
(270)
(271)
XUEV3VW
(272)
(273)
XUEV3VW
(274)
XUC2FP
XWGV3D6G
(275)
XUEV3VW
XUEV3VW
XWGV3D6G
(277)
(276)
(278)
XWGV3D6G
XUEV3VW
(279)
(280)
XUEV3VW
(250)
(251)
(252)
XTV2+5F
XUC15FP
(253)
XUC15FP
(254)
(255)
XUEV3VW
XWGV3D6G
E
B
A
C

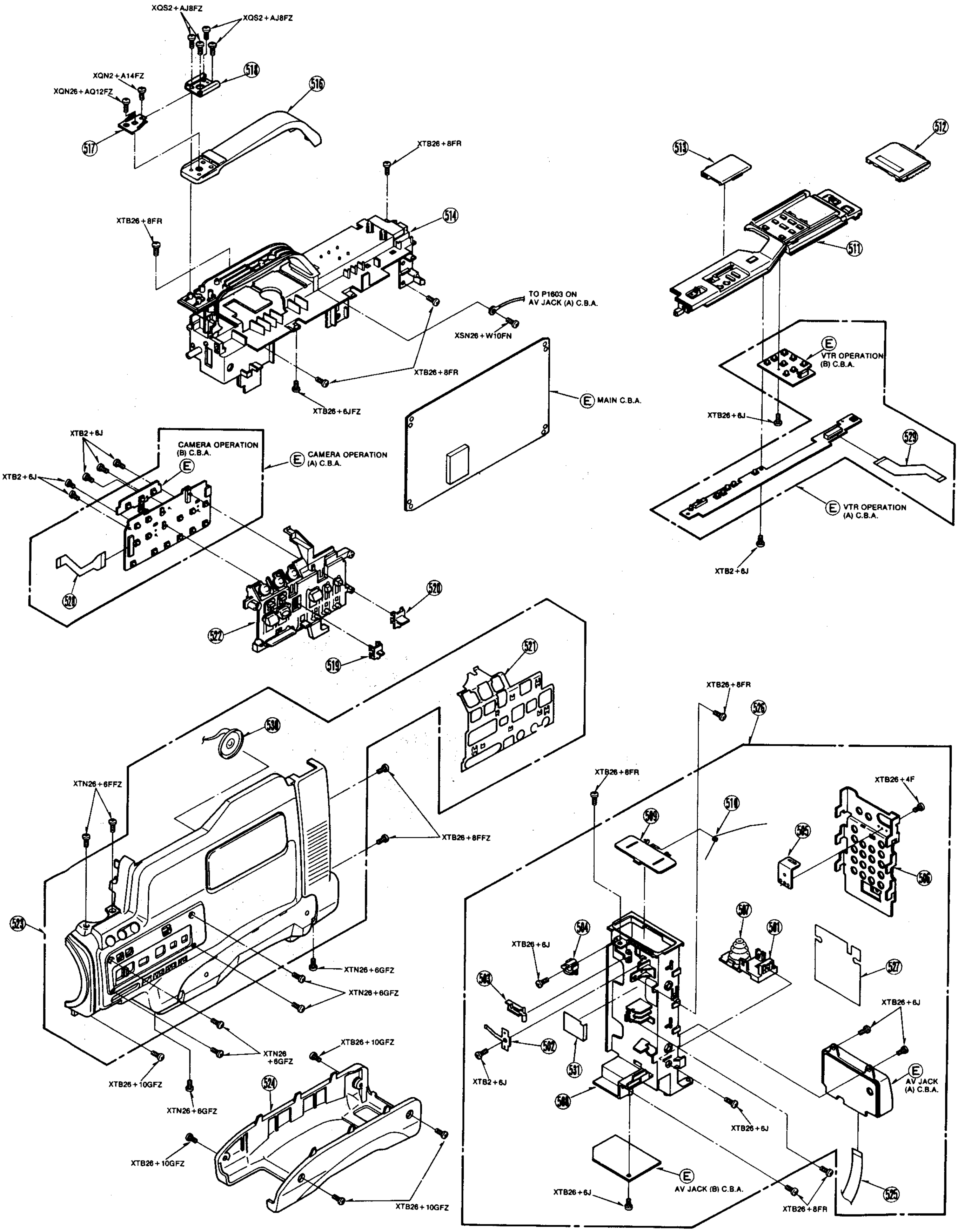
(3) CAMERA LENS SECTION


306
308
309
308
301
XQN16+CJ35
E
MANUAL FOCUS SENSOR C.B.A.
XQN16+CJ6
XQN2+CJ6
302
318
321
313
308
311
305
314
XQN16+CJ5
316
315
325
317
XQN16+CJ5
324
XQN16+CJ5
322
323
303
XQN16+CJ5
304
307
310
312
330
320
E
CCD DRIVE C.B.A.
332
XTV26+8FR
XTB26+6J
E
CHARACTER GENERATOR C.B.A.
319
XTN2+B4FY
XTB26+6J
331
XTB26+6F
XTB26+6F
XTN2+B4FY
E
PROCESS & AF C.B.A.

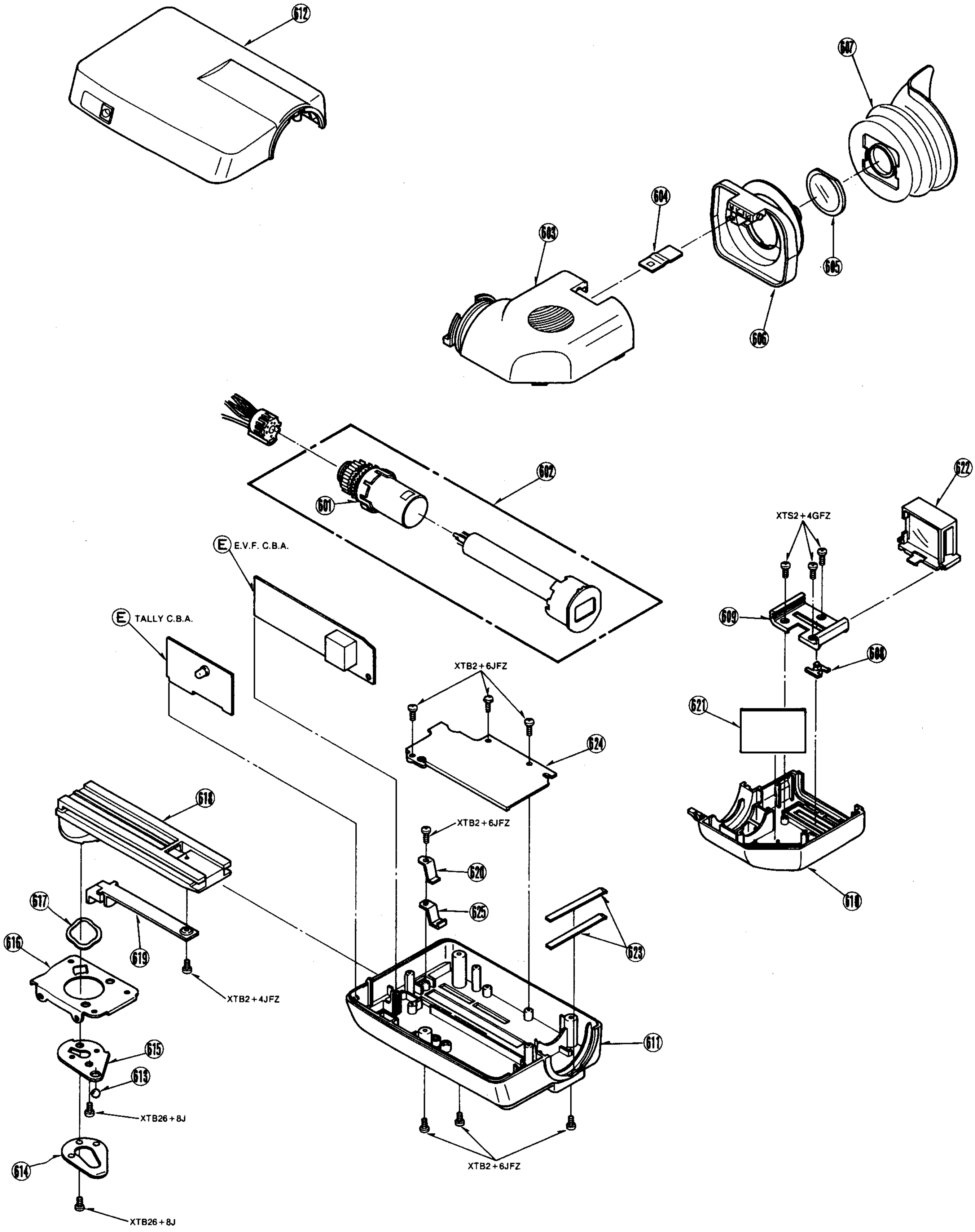
(4) FRAME & CASING PARTS SECTION (1)


(416)
(410)
(423)
Ⓔ ZOOM C.B.A.
(408)
XTB26+6JFZ
Ⓔ START/STOP SW C.B.A.
(426)
(403)
(405)
Ⓔ SUB START/STOP SW C.B.A.
(404)
(418)
(412)
XTN26+6FFZ
(413)
XTB26+6JFZ
XTN26+6GFZ
XTV26+8FR
(424)
XTN26+6GFZ
XTB26+6JFZ
(420)
XTB26+6JFZ
XTN26+6GFZ
EVF SECTION
(421)
XTN26+6JFZ
(422)
XTB26+8FR
(411)
(425)
XTB26+8FR
XTB26+6JFZ
(415)
(402)
LENS SECTION
XTB26+6JFZ
(401)
XTB26+8FR
XTB26+6JFZ
(419)
(409)

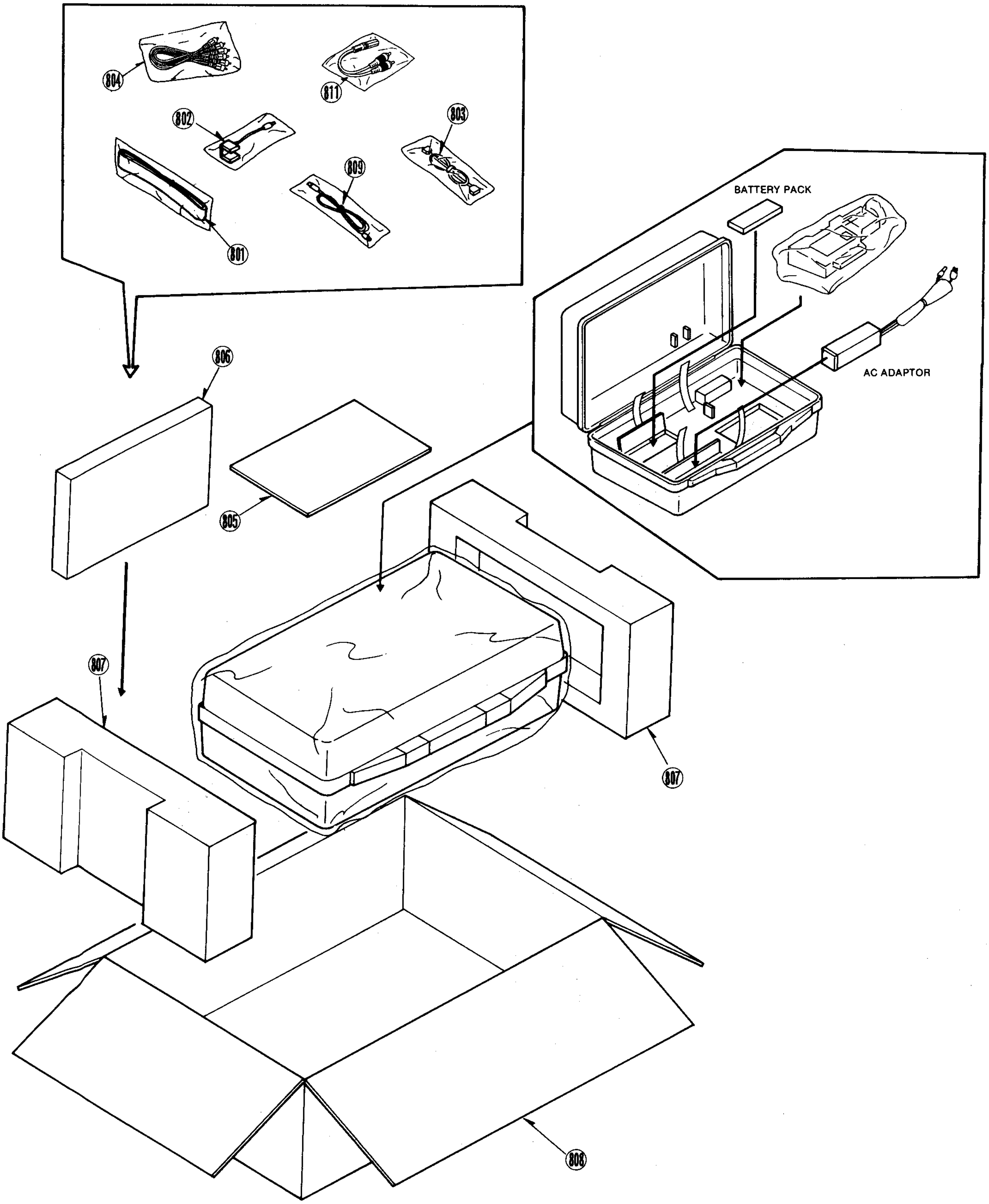
(5) FRAME & CASING PARTS SECTION (2)


XQS2+AJ8FZ
XQS2+AJ8FZ
XQN2+A14FZ
XQN26+AQ12FZ
518
516
517
XTB26+8FR
514
XTB26+8FR
513
512
511
TO P1603 ON
AV JACK (A) C.B.A.
XSN26+W10FN
XTB26+8FR
XTB26+6JFZ
E
MAIN C.B.A.
E
VTR OPERATION
(B) C.B.A.
XTB26+6J
529
E
VTR OPERATION
(A) C.B.A.
XTB2+6J
XTB2+6J
XTB2+6J
CAMERA OPERATION
(B) C.B.A.
E
E
CAMERA OPERATION
(A) C.B.A.
528
520
522
519
521
530
XTN26+6FFZ
XTB26+8FFZ
523
XTN26+6GFZ
XTN26+6GFZ
XTN26
+6GFZ
XTB26+10GFZ
XTB26+10GFZ
XTN26+6GFZ
524
XTB26+10GFZ
XTB26+10GFZ
XTB26+8FR
526
XTB26+8FR
510
509
XTB26+4F
505
506
504
507
501
XTB26+6J
503
527
XTB26+6J
502
XTB2+6J
531
508
E
AV JACK
(A) C.B.A.
XTB26+6J
E
AV JACK (B) C.B.A.
XTB26+6J
XTB26+8FR
525

(6) EVF SECTION


612
607
604
603
605
606
602
601
622
XTS2+4GFZ
E.V.F. C.B.A.
TALLY C.B.A.
609
608
XTB2+6JFZ
621
624
618
XTB2+6JFZ
620
610
617
625
616
619
623
XTB2+4JFZ
611
615
613
XTB26+8J
614
XTB2+6JFZ
XTB26+8J

(7) PACKING PARTS & ACCESSORIES SECTION


804
811
802
803
809
801
BATTERY PACK
AC ADAPTOR
806
805
807
807
808

5-2. MECHANICAL REPLACEMENT PARTS LIST

Note: 1.* Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
100(1)	VMD0954	CASSETTE GUIDE (L)	1	
101(1)	VDG0610	MAIN ARM GEAR (A)	1	
102(1)	VMD0953	CASSETTE GUIDE (R)	1	
103(1)	VXA4856	CASSETTE HOLDER UNIT	1	
104(1)	VXP1139	DAMPER UNIT	1	
105(1)	VXL1984	LOCK LEVER UNIT	1	
107(1)	VXA3863	STAND (R) UNIT	1	
109(1)	VMB1329	HOLDER SPRING (L)	1	
110(1)	VMB1621	HOLDER SPRING (R)	1	
112(1)	VSH0026	LEAF SW	1	
113(1)	VMD0952	LEAF SW COVER (0)	1	
114(1)	VMB1330	LOCK BOARD SPRING	1	
115(1)	VXA3023	STAND (L) UNIT	1	
116(1)	VMB1453	LOCK LEVER (B) SPRING	1	
117(1)	VML1650	LOCK LEVER (B)	1	
118(1)	VDP1096	LOCK ROLLER (0)	1	
119(1)	VXL1648	LOCK BOARD UNIT	1	
120(1)	VMB1331	LOCK LEVER (A) SPRING	1	
121(1)	VML1649	LOCK LEVER (A)	1	
122(1)	VXA4832	CASSETTE UP (0) UNIT	1	
123(1)	VXR0200	SUPPLY REEL TABLE	1	
124(1)	VXP0900B	SUPPLY CLUTCH UNIT	1	
125(1)	VXP0901B	TAKE-UP CLUTCH UNIT	1	
126(1)	VXR0201	TAKE-UP REEL TABLE	1	
128(1)	VSQ0808	DEW DETECTOR UNIT	1	
129(1)	VGQ0888	CASSETTE OPENER	1	
135(1)	VXZ0246	SOFT BRAKE (T) UNIT	1	
136(1)	VXP0899B	DRIVE GEAR ARM UNIT	1	
137(1)	VHD0593	CYLINDER UNIT SCREW	2	
140(1)	VEG1105	CYLINDER UNIT	1	
141(1)	VDV0167	LOADING BELT	1	
142(1)	VDG0370	INTERMEDIATE PULLEY GEAR	1	
143(1)	VMX0653	CUT WASHER	1	
144(1)	VDG0372	DRIVE GEAR (B)	1	
145(1)	VXS0123	EARTH BRUSH UNIT	1	
147(1)	VDG0371	DRIVE GEAR (A)	1	
148(1)	VDG0202	CAM GEAR	1	
149(1)	VMX0388	THRUST WASHER	3	
150(1)	VXL1654	MAIN ROD (K) UNIT	1	
151(1)	VDG0211	LOADING GEAR (C) (2)	1	
152(1)	VMB1324	LOADING GEAR (C) SPRING	1	
153(1)	VDG0210	LOADING GEAR (C) (1)	1	
154(1)	VMA7228	GUARD PLATE	1	
155(1)	VML1707	DRIVE ARMKICK LEVER	1	
156(1)	VMB1388	DRIVE ARMKICK LEVER SPRING	1	
157(1)	VXP0632	SECTOR GEAR UNIT	1	
158(1)	VMA6560	SAFETY TAB SW BASE	1	
159(1)	VSH0023	SAFETY TAB SW	1	
160(1)	VDG0207	DRIVE GEAR (C)	1	
161(1)	VSS0193	MODE SW	1	INCLUDED IN MECHA
				CONNECTION C.B.A.
				(VES0689)
163(1)	VEK5926	STATOR UNIT	1	
164(1)	VXP1355	ROTOR UNIT	1	
165(1)	VXP0897	MAIN PULLEY UNIT	1	
166(1)	VDV0155	CAPSTAN BELT	1	
167(1)	VMD0935	BELT COVER	1	
170(1)	VHD0682	CYLINDER SCREW	3	
171(1)	VWJ0636	CAPSTAN FPC	1	
173(1)	VEK6098	PHOTO TR (R) U.	1	
174(1)	VEK6035	PHOTO TR (L) U.	1	
175(1)	VEP03A93A	RT-FPC	1	
176(1)	VXP1539	IMPEDANCE ROLLER	1	
177(1)	VXL2446	IMPEDANCE ARM	1	
200(2)	VHD0282	P2 ADJUST PLATE SCREW	1	
201(2)	VMA6542	P2 ADJUST PLATE	1	
202(2)	VMD0701	SUPPLY POST STOPPER	1	
203(2)	VMD1166	V STOPPER BASE	1	
204(2)	VXP0841	SUPPLY ROLLER POST UNIT	1	
205(2)	VGQ0842	P2 CAP	1	
206(2)	VMD0769	TAPE PROTECTOR	1	
207(2)	VXA2221	SUPPLY SHAFT HOLDER(1)UNIT	1	
208(2)	VXA2256	SUPPLY SHAFT HOLDER ANGLE	1	
		UNIT	1	
209(2)	VMM0144	CONNECTION ROD	1	
210(2)	VMX1282	RING GUIDE SLEEVE UNIT	3	
211(2)	VXA2231	CONNECTION TIE UNIT	1	
212(2)	VMB1319	LOADING SPRING	1	
213(2)	VXA2253	LOADING RING (S) (1) UNIT	1	
214(2)	VDP1160	RING GUIDE ROLLER	3	
215(2)	VMB1319	LOADING SPRING	1	
216(2)	VXA3576	LOADING RING (T) (1) UNIT	1	
217(2)	VMC0250	PRESSER SPRING	1	
218(2)	VMX1279	RING GUIDE SLEEVE	3	
219(2)	VMD1155	LOADING GUIDE (S) (1)	1	
220(2)	VMD1128	LOADING GUIDE (S) (2)	1	
221(2)	VMX1088	SUPPLY UPPER LIMITER	1	
222(2)	VMS2888	P1 POST SLEEVE (B)	1	
223(2)	VMX1581	P1 COLLAR	1	
224(2)	VDP1265	P1 ROLLER	1	
225(2)	VMA6547	P1 LIMITER PLATE	1	
227(2)	VXA3112	P1 BASE (1) UNIT	1	
228(2)	VXD0098	THRUST SPACER	1	
229(2)	VHD0204	THRUST SCREW NUT	1	
230(2)	VHD0368	ROLLER POST SCREW	2	
231(2)	VMX0775	DUST SEAL	2	
232(2)	VXD0108	CAPSTAN HOUSING UNIT	1	
233(2)	VXP0927	TAKE-UP ROLLER POST UNIT	1	
234(2)	VMA6546	TAKE-UP SHAFT HOLDER ANGLE	1	
235(2)	VXA3116	TAKE-UP SHAFT HOLDER (A)	1	
		UNIT		
236(2)	VMD1165	TAKE-UP LOADING BASE	1	
237(2)	VMC0352	SHAFT HOLDER PRESSURE	1	
		SPRING		
238(2)	VMA7226	SHAFT HOLDER PLATE ANGLE	1	
239(2)	LN59NV	LED	1	
240(2)	VHD0367	TAKE-UP SHAFT ADJ. SCREW	1	
242(2)	VEM0431	LOADING MOTOR UNIT	1	<!>
245(2)	VMB1747	TENSION SPRING	1	
246(2)	VXL1262	TENSION ARM UNIT	1	
247(2)	VXZ0245	TENSION BAND UNIT	1	
248(2)	VML2065B	BAND RELEASE ARM	1	
249(2)	VXA4828	TENSION KICK LEVER	1	
250(2)	VML2064B	EJECT LEVER (A)	1	
251(2)	VXA3020	SUPPORTER UNIT	1	
252(2)	VMB1405	BRAKE SPRING	1	
253(2)	VXZ0207B	BRAKE (R) UNIT	1	
254(2)	VXZ0206B	BRAKE (L) UNIT	1	
255(2)	VXA4263	BRAKE PLATE (1) UNIT	1	
256(2)	VML2073	EJECT LEVER (B)	1	
257(2)	VED0183	A/C HEAD UNIT	1	
258(2)	VHD0275	A/C HEAD ADJUST SCREW	1	
259(2)	VMB1321	A/C HEAD ADJUST SPRING	1	
260(2)	VHD0381	A/C HEAD TILT ADJUST SCREW	1	
261(2)	VXL2256	A/C HEAD ARM UNIT	1	
262(2)	VWJ0608	A/C HEAD FPC	1	
263(2)	VHN0077	A/C HEAD ARM NUT	1	
264(2)	VMB1320	A/C HEAD SPRING	1	
265(2)	VDG0208	LOADING GEAR (A)	1	
266(2)	VDG0461	LOADING GEAR (B)	1	
267(2)	VHN0072	ADJUST NUT	1	
268(2)	VHN0047	M2 NYLON NUT	2	
269(2)	VMS2693	P4 POST SLEEVE	1	
270(2)	VXJ0057	P5 POST SLEEVE	1	
271(2)	VMB1322	P4,P5 SPRING	2	
272(2)	VML2067B	PINCH LEVER	1	
273(2)	VMB2071	PINCH LEVER SPRING	1	
274(2)	VXL1652	PINCH ROLLER ARM (1) UNIT	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
275(2)	VXL1650	PINCH ARM UNIT	1	
276(2)	VMB1326	PINCH ARM SPRING	1	
277(2)	VXL1264B	SOFT BRAKE LEVER (S) UNIT	1	
278(2)	VMB1314	SOFT BRAKE SPRING (S)	1	
279(2)	VMB1771	REW ARM SPRING	1	
280(2)	VXL1649B	FF/REW ARM UNIT	1	
282(2)	VBS0021	FE HEAD	1	
283(2)	VMD1129	FE HEAD BASE	1	
284(2)	VMB1447	SUPPORTER SPRING	1	
285(2)	VXA3579	SLIDE BASE (O) UNIT	1	
286(2)	VMB1965	SLIDE SPRING	1	
287(2)	VML2285	IMPEDANCE LEVER	1	
288(2)	VHN0109	PUSH NUT	1	
289(2)	VMB1964	IMPEDANCE DRIVE SPRING	1	
290(2)	VXL1879	IMPEDANCE ARM (1) UNIT	1	
291(2)	VDP1285	IMPEDANCE ROLLER	1	
292(2)	VMX1088	SUPPLY UPPER LIMITER	1	
294(2)	VXA2220	SUPPLY SHAFT HOLDER UNIT	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
401(4)	VMD2007	TRIPOD FRAME	1	
402(4)	VSC3732	TRIPOD SHIELD PLATE	1	
403(4)	VYP5790	CASSETTE COVER U.	1	
404(4)	VYK6389	SIDE CASE (L)(1) U.	1	
405(4)	VYK4795	GRIP CASE (1) U.	1	
408(4)	VXU1120	ZOOM BUTTON (1) U.	1	
409(4)	VYF1893	HOOD CAP U.	1	
410(4)	VYC0557	GRIP BELT U.	1	
411(4)	VKM4075	FRONT CASE	1	
412(4)	VHD0386	GRIP BELT SCREW	1	
413(4)	VMP3822	SHOLDER ANGLE (F)	1	
415(4)	VKM4074	LENS COVER	1	
416(4)	VHD0371	SCREW	2	
418(4)	VEK5863	MIC U.	1	
419(4)	VDW0191	LENS HOOD	1	
420(4)	VWJ0789	CYLINDER FLEX.CABLE	1	
421(4)	VWJ0636	CAPSTAN FLEX.CABLE	1	
422(4)	VSC3632	HEAD AMP SHIELD CASE (C)	1	
423(4)	VHD0771	SCREW	2	
424(4)	VMP3688	FRAME SET. ANGLE	1	
425(4)	VMZ2085	CAMERA FLEX.BARRIER	1	
426(4)	VEE7782	ZOOM FLEX	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
301(3)	VXW0115	LENS U.	1	
302(3)	VXQ0331	MAIN LENS U.	1	
303(3)	VXP1300	2ND MOVING FRAME U.	1	
304(3)	VXP1302	SCREW SHAFT U.	1	
305(3)	VXQ0266	3RD FRAME LENS U.	1	
306(3)	VXL2126	IRIS U.	1	
307(3)	VXP1301	4TH MOVING FRAME U.	1	
308(3)	VMD1815	MASTER FLANGE	1	
309(3)	EVAJH4J03B14	ZOOM ENCODER U.	1	
310(3)	VEM0421	ZOOM MOTOR U.	1	
311(3)	VEM0422	FOCUS MOTOR U.	1	
312(3)	VMT0342	MOTOR CUSHION	2	
313(3)	VHD0666	SCREW	1	
314(3)	VMT0336	IRIS CUSHION	1	
315(3)	VDL0314	CRYSTAL FILTER	1	
316(3)	VMX2124	CCD CUSHION	1	
317(3)	VEK6072	CCD U.	1	
318(3)	VSC3633	CCD SHIELD CASE	1	
319(3)	VMD2023	CAM P.C.BOARD FRAME	1	
320(3)	VMP3695	CAMERA FRAME	1	
321(3)	VGF0416	SHADING PIECE	1	
322(3)	VSC3818	SHIELD PLATE	1	
323(3)	VDW0182	FRONT FRAME	1	
324(3)	VDW0184	FOCUS RING	1	
325(3)	VDW0183	REAR FRAME	1	
330(3)	VGQ1986	CHARA. GENE. JACK PIECE	1	
331(3)	VMP4586	LENS FRAME	1	
332(3)	VMA8700	HOLD ANGLE	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
501(5)	VGQ1129	BATTERY CATCHER	1	
502(5)	VMC0876	BATTERY LOCK ANGLE	1	
503(5)	VGQ2849	BATTERY LOCK	1	
504(5)	VGQ2850	INTERMEDIATE LEVER	1	
505(5)	VMP3689	SHOLDER ANGLE	1	
506(5)	VMP3692	BATTERY CASE FIX.ANGLE	1	
507(5)	VMB2524	BATTERY PUSHING SPRING	1	
508(5)	VKM3072	BATTERY CASE U.	1	
509(5)	VKF1876	BATTERY DOOR	1	
510(5)	VMC0237	DOOR SPRING	1	
511(5)	VXU1333	TOP OPERATION PANEL (1)U.	1	
512(5)	VKF1936	CURSOR	1	
513(5)	VKF1878	RESET MEMORY DOOR	1	
514(5)	VMD2006	TOP FRAME	1	
516(5)	VKM3071	HANDLE UPPER CASE	1	
517(5)	VMC0726	SHOE SPRING	1	
518(5)	VMP2407	SHOE	1	
519(5)	VGU5898	SLIDE KNOB (A)	1	
520(5)	VGU5908	SLIDE KNOB (B)	1	
521(5)	VMC0889	CAMERA EARTH PLATE	1	
522(5)	VGP3162	CAMERA OPERATION PANEL	1	
523(5)	VYK6605	SIDE CASE (R) U.	1	
524(5)	VMT0452	SHOLDER PAD	1	
525(5)	VWJ0609	AV JACK-MAIN CABLE	1	
526(5)	VYK4774	BATTERY CASE U.	1	
527(5)	VMZ2063	JACK BARRIER	1	
528(5)	VWJ0638	CAMERA OPE.-PROCESS FLEX.	1	
529(5)	VWJ0610	VTR OPE.- BIN FLEX.	1	
530(5)	VEK6102	EAR SPEAKER U.	1	
531(5)	VMZ2090	BATT. BARRIER	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
601(6)		ELY07V570F	DEFLECTION YOKE	1	
602(6)		VEK6002	CRT U.	1	
603(6)		VYK4496	FINDER CASE (UPPER)	1	
604(6)		VMC0316	EYE CAP HOLDER SPRING	1	
605(6)		VDL0140	LENS (2)	1	
606(6)		VKF1996	EYE CAP HOLDER	1	
607(6)		VMG0716	EYE CAP	1	
608(6)		VGU3895	EYESIGHT ADJ. LEVER	1	
609(6)		VKF1278	LENS HOLDER GUIDE	1	
610(6)		VKM3077	FINDER CASE (LOWER)	1	
611(6)		VKM3205	EVF MAIN CASE LOWER U.	1	
612(6)		VYK4569	EVF MAIN CASE UPPER U.	1	
613(6)		VMP1358	EVF BEARING	1	
614(6)		VMC0902	EVF LOCK SPRING	1	
615(6)		VMP3823	EVF ROTARY PLATE	1	
616(6)		VMP3690	EVF MOUNT ANGLE	1	
617(6)		VMX2172	WAVING WASHER	1	
618(6)		VGQ2914	EVF ROTATION BASE	1	
619(6)		VGQ2967	ROTARY BASE COVER	1	
620(6)		VMC0914	ROTARY BASE SPRING	1	
621(6)		VDL0349	MIRROR	1	
622(6)		VYQ0082	LENS HOLDER U.	1	
623(6)		VMC0890	SPRING PLATE	2	
624(6)		VGQ2846	WIRE COVER	1	
625(6)		VGQ3069	EVF SLIDER	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
801(7)		VFC1309	SHOLDER STRAP	1	
802(7)		VJA0180	BATTERY CATCHER	1	
803(7)		VJA0573	3P DC INPUT CABLE	1	
804(7)		VJA0788	AV CABLE	1	
805(7)		VQT6037	OPERATING INSTRUCTIONS	1	
806(7)		VPK1514	ACCESSORY CASE	1	
807(7)		VPN2612	CUSHION	2	
808(7)		VPG7890	PACKING CASE	1	
809(7)		VJA0816	S-VHS CABLE	1	
810(7)		VSB0164	BATTERY	1	
811(7)		VJA0819	HEAD PHONE CABLE	1	

5-3. ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
	VEP06832A	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		TALLY		
	VEP28058A	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		EVF		
	VXU1138	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		ZOOM		
	VEK5869	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		S/S		FOR VXU1138
	VEK5870	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		SUB S/S		FOR VXU1138
	VEP03A86F	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		MAIN		
	VEP00V72A	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		VITC RESET		FOR VEP03A86F
	VEP22117C	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		CCD DRIVE		
	VEP23146H	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		PROCESS		
	VEK5865	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		CHARA/GENE		
	VEP20437A	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		CAMERA OPERATION (A)		
	VEP20438B	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		CAMERA OPERATION (B)		FOR VEP20437A
	VEP06817A	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		VTR OPERATION (A)		
	VEP06847B	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		VTR OPERATION (B)		FOR VEP06817A
	VEP22118A	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		CCD		
	VEP03946E	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		AV JACK (A)		
	VEP03988A	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		AV JACK (B)		
	VEK7280	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		RT-FPC U		
	VES0689	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		MECHA CONNECTION		
	VEK6035	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		PHOTO HOLDER (L)		
	VEK6098	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		PHOTO HOLDER (R)		
	VEK5868	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		FE HEAD		
	VEK5942	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		MANUAL FOCUS		
	VEK5863	P.C.BOARD W/COMPONENT	1	(RTL)<R>
		MIC		

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
	VEP06832A	P.C.BOARD W/COMPONENT		
		TALLY		
C1881	ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
D1881	8R3338S	DIODE	1	<R>
D1882	PN327	DIODE	1	<R>
P1881	VJP1597T	CONNECTOR (MALE) 4P	1	
Q1881	2SD637	TRANSISTOR	1	<R>
R1881	ERDS2TJ224	C.RESISTOR 1/4W 220K	1	
R1882	ERDS2TJ473	C.RESISTOR 1/4W 47K	1	
R1883	ERDS2TJ181	C.RESISTOR 1/4W 180	1	
	VEP28058A	P.C.BOARD W/COMPONENT		
		EVF		
C801	ECHU1C104J	P.CAPACITOR CH 16V 0.1U	1	
C802	ECEA1CKE101	E.CAPACITOR 16V 100U	1	
C804	ECUM1C155ZFN	C.CAPACITOR CH 16V 1.5U	1	
C805	ECEA0JKE221	E.CAPACITOR 6.3V 220U	1	
C806	ECUM1E123KBN	C.CAPACITOR CH 16V 0.012U	1	
C807	ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C808	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C809	ECA1EKF100	E.CAPACITOR 25V 10U	1	
C810	ECUM2A472JUM	C.CAPACITOR CH 16V 4700P	1	
C811	ECEA1CKE101	E.CAPACITOR 16V 100U	1	
C812	ECUX1H101JCV	C.CAPACITOR CH 50V 100P	1	
C813	VCK0088K151E	C.CAPACITOR	1	
C814	ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C815	ECUM2H331KBM	C.CAPACITOR CH 16V 330P	1	
C816	ECUX1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C820	ECUM2A102JUN	C.CAPACITOR CH 16V 1000P	1	
C831	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
D801	MA141K	DIODE	1	<R>
D802	SFPL-52	DIODE	1	<R>
IC801	AN2515NS	IC	1	<R>
L801	ELJPA390KB	COIL 39UH	1	
L802	ELH5L218D	COIL	1	
P801	VJP1598T	CONNECTOR (MALE) 5P	1	
P802	VJP3007E004	CONNECTOR (MALE) 4P	1	
P803	VJP1229T	CONNECTOR (MALE) 2P	1	
P804	VJP3007E003	CONNECTOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q802		2SD968A-S	TRANSISTOR	1	<R>
Q803		2SA1532	TRANSISTOR	1	<R>
R801		ERJ6ENF3482	M.RESISTOR CH 1/10W 4.8K	1	
R802		ERJ6GEYJ3R9	M.RESISTOR CH 1/10W 3.9	1	
R805		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R807		ERJ3GEYJ4R7	M.RESISTOR CH 1/16W 4.7	1	
R808		ERJ3GEYJ242	M.RESISTOR CH 1/16W 2.4K	1	
R809		ERJ3GEYJ564	M.RESISTOR CH 1/16W 560K	1	
R810		ERJ6GMYF104	M.RESISTOR CH 1/10W 100K	1	
R814,15		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	2	
R816		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R817		ERJ3GEYJ242	M.RESISTOR CH 1/16W 2.4K	1	
R818		ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R819,20		ERJ6GEYJ335	M.RESISTOR CH 1/10W 3.3M	2	
R821		ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	1	
R823		ERJ3GEYJ220	M.RESISTOR CH 1/16W 22	1	
R825		VSF0015A025	FUSE	1	<!>
R830		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R832		ERJ6ENF4222	M.RESISTOR CH 1/10W 2.2K	1	
R833		ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
T801		ETF08L16B	TRANSFORMER	1	
VR801		EVM7JGA00BE2	V.RESISTOR	1	
VR803		EVMLPNA00BV6	V.RESISTOR	1	
VR804		EVMLPNA00BE6	V.RESISTOR	1	
		VXU1138	P.C.BOARD W/COMPONENT		
			ZOOM		
		VEK5869	P.C.BOARD W/COMPONENT		ON VXU1138
			S/S		
		VEK5870	P.C.BOARD W/COMPONENT		ON VXU1138
			SUB S/S		
P305		VJS3172B005	CONNECTOR (FEMALE) 5P	1	
SW1890,91		EVQQSU04W	SWITCH	2	<R>
			MISCELLANEOUS		
		VXU1120	ZOOM BUTTON	1	
		VEP03A86F	P.C.BOARD W/COMPONENT		
			MAIN		
		VEP00V72A	P.C.BOARD W/COMPONENT		ON VEP03A86F
			VITC RESET		
B3001		VJS2961A030	CONNECTOR (FEMALE) 30P	1	
B5001		VJS2961A006	CONNECTOR (FEMALE) 6P	1	
B6001		VJP3358C016	CONNECTOR (MALE) 16P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C01		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C01		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C02		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C02		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C02		ECUE1E222KBQ	C.CAPACITOR 25V 2200P	1	
C03		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C03		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C03		ECUX1H332KBV	C.CAPACITOR CH 50V 3300P	1	
C04		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C04		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C04		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C05		ECST1CY225Z	T.CAPACITOR CH 16V 2.2U	1	
C05		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C06		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C06		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C07		ECST1CY225Z	T.CAPACITOR CH 16V 2.2U	1	
C07		ECUE1E472ZFQ	C.CAPACITOR 25V 4700P	1	
C07		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C08		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C08		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C08		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C09		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C09		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C09,10		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	2	
C10		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C10		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C11		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C11		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C11		ECUX1E223KBV	C.CAPACITOR CH 25V 0.023U	1	
C12		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C12		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C12		ECUM1C105MBM	C.CAPACITOR CH 16V 1U	1	
C13		ECUE1E472ZFQ	C.CAPACITOR 25V 4700P	1	
C13		ECUX1H681JCV	C.CAPACITOR CH 50V 680P	1	
C14		ECUX1H391JCV	C.CAPACITOR CH 50V 390P	1	
C14		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C15		ECUM1C105MBM	C.CAPACITOR CH 16V 1U	1	
C15		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C16		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C16		ECST1CY225Z	T.CAPACITOR CH 16V 2.2U	1	
C16,17		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	2	
C17		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C18		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C18		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C18		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C19		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C19		ECUE1E222KBQ	C.CAPACITOR 25V 2200P	1	
C20		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C20		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C20		ECUX1H391JCV	C.CAPACITOR CH 50V 390P	1	
C21		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C21		ECUX1H150JCV	C.CAPACITOR CH 50V 15P	1	
C21		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C22		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C22		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C22,23		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	2	
C23		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C23		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C24		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C24		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C24		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C25		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C25		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C25		ECUX1H223ZFV	C.CAPACITOR CH 50V 0.022U	1	
C26		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C26		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C26		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C27		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C27		ECUE1H220JCQ	C.CAPACITOR 50V 22P	1	
C27		ECUX1H820JCV	C.CAPACITOR CH 50V 82P	1	
C28		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C28		ECUX1H152KBV	C.CAPACITOR CH 50V 1500P	1	
C28		ECUX1H561JCV	C.CAPACITOR CH 50V 560P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C29		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C29		ECST1VY334Z	T.CAPACITOR CH 35V 0.33U	1	
C29		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C30		ECUM1C334KBM	C.CAPACITOR CH 16V 0.34U	1	
C30		ECUX1H271JCV	C.CAPACITOR CH 50V 270P	1	
C30		ECUX1H473ZFV	C.CAPACITOR CH 50V 0.047U	1	
C31		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C31		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C31		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C32		ECST1CY105Z	T.CAPACITOR CH 16V 1U	1	
C32		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C32		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C33		ECST1AY475Z	T.CAPACITOR CH 16V 4.7U	1	
C33		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C33		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C34		ECUE1E103ZFQ	C.CAPACITOR 25V 0.01U	1	
C34		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C34		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C35		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C35		ECUX1C105KBM	C.CAPACITOR CH 16V 1U	1	
C36		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C36		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C37		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C37		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C37		ECUX1C105KBM	C.CAPACITOR CH 16V 1U	1	
C38		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C39		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C41		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C42		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C43		ECUE1H330JCQ	C.CAPACITOR 50V 33P	1	
C1001		ECUM1E225ZFM	C.CAPACITOR CH 25V 2.2U	1	
C1002		ECEV1EA680	E.CAPACITOR CH 25V 68U	1	
C1003		ECGC0KB8R2	CAPACITOR	1	
C1004		ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C1005		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C1006		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C1007		ECEV0JA220	E.CAPACITOR 6.3V 22U	1	
C1008		ECGC0KB8R2	CAPACITOR	1	
C1009		ECUX1H681JCV	C.CAPACITOR CH 50V 680P	1	
C1010		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C1011		ECUM1C225ZFM	C.CAPACITOR CH 16V 2.2U	1	
C1012		ECUX1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C1013		ECGC1BA4R7	CAPACITOR	1	
C1014		ECUX1H561JCV	C.CAPACITOR CH 50V 560P	1	
C1016		ECUM1C335ZFM	C.CAPACITOR CH 16V 3.3U	1	
C1017		ECUM1E105ZFM	C.CAPACITOR CH 16V 1U	1	
C1019		ECUM1E474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C1020		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C1022		ECUX1H104ZFM	C.CAPACITOR CH 50V 0.1U	1	
C1024		ECUM1C474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C1025		ECUM1E104KBN	C.CAPACITOR CH 16V 0.1U	1	
C1026		ECEV1HA010	E.CAPACITOR 50V 1U	1	
C1027		ECUX1H121JCV	C.CAPACITOR CH 50V 120P	1	
C1028		ECUM1C474KBM	C.CAPACITOR CH 16V 0.47U	1	
C1029		ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C1030		ECUX1H822KBV	C.CAPACITOR CH 50V 8200P	1	
C1031		ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C1032		ECUX1H822KBV	C.CAPACITOR CH 50V 8200P	1	
C1033,34		ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	2	
C1035		ECUX1H680JCV	C.CAPACITOR CH 50V 68P	1	
C1036		ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C1037		ECUX1H822KBV	C.CAPACITOR CH 50V 8200P	1	
C1061		ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C1062		ECEV1EA470	E.CAPACITOR CH 25V 47U	1	
C1063		ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C1064		ECEV1EA470	E.CAPACITOR CH 25V 47U	1	
C1065,66		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C1067		ECEV1EA330	E.CAPACITOR CH 25V 33U	1	
C1068		ECEV1CA101	E.CAPACITOR 16V 100U	1	
C1069,70		ECUM1C475ZFM	C.CAPACITOR CH 16V 4.7U	2	
C1071		ECUM1E225ZFM	C.CAPACITOR CH 25V 2.2U	1	
C1072		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C1073		ECUM1E105ZFM	C.CAPACITOR CH 16V 1U	1	
C1074		ECUM1C475ZFM	C.CAPACITOR CH 16V 4.7U	1	
C1106		ECEV1CA100	E.CAPACITOR CH 16V 10U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C1107		ECEV0JA220	E.CAPACITOR 6.3V 22U	1	
C1108		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C1109		ECEV0JA220	E.CAPACITOR 6.3V 22U	1	
C1110		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C1111		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C2101		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C2102		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C2103		ECST1AY475Z	T.CAPACITOR CH 16V 4.7U	1	
C2104		ECUX1E473KBN	C.CAPACITOR CH 25V 0.047U	1	
C2105,06		ECUX1H561KBV	C.CAPACITOR CH 50V 560P	2	
C2107		ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C2108		ECUM1E104KBN	C.CAPACITOR CH 16V 0.1U	1	
C2109		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C2110		ECUX1E223KBV	C.CAPACITOR CH 25V 0.023U	1	
C2111		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2112		ECUM1E104KBN	C.CAPACITOR CH 16V 0.1U	1	
C2113		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C2115		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C2116		ECUX1H152KBV	C.CAPACITOR CH 50V 1500P	1	
C2117,18		ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	2	
C2119-21		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	3	
C2122		ECUX1H333ZFV	C.CAPACITOR CH 50V 0.033U	1	
C2123-25		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C2126		ECEV1HAR47	E.CAPACITOR 50V 0.47U	1	
C2127		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2128		ECUX1H333ZFV	C.CAPACITOR CH 50V 0.033U	1	
C2129		ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C2130		ECEV05A470	E.CAPACITOR CH 4V 47U	1	
C2131		ECUX1H121JCV	C.CAPACITOR CH 50V 120P	1	
C2132		ECUX1H102JCN	C.CAPACITOR CH 50V 1000P	1	
C2133		ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C2134		ECEV1AA330	E.CAPACITOR CH 10V 330U	1	
C2135		ECEV0GA101	E.CAPACITOR CH 4V 100U	1	
C2136		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C2141		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2142		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2143		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C2144-46		ECUM1E104KBN	C.CAPACITOR CH 16V 0.1U	3	
C2147,48		ECUX1C105KBM	C.CAPACITOR CH 16V 1U	2	
C2149		ECUM1C185ZFN	C.CAPACITOR CH 16V 1.8U	1	
C2150		ECUX1C105KBM	C.CAPACITOR CH 16V 1U	1	
C2151		ECEV1CA100	E.CAPACITOR CH 16V 10U	1	
C3002		ECEV0GA470	E.CAPACITOR CH 4V 47U	1	
C3003,04		ECEV0GA471	E.CAPACITOR CH 4V 470U	2	
C3005		ECUX1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3006		ECUX1H271JCV	C.CAPACITOR CH 50V 270P	1	
C3007		ECUX1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3008		ECUX1H271JCV	C.CAPACITOR CH 50V 270P	1	
C3009		ECUX1H221JCV	C.CAPACITOR CH 50V 220P	1	
C3010		ECUX1H271JCV	C.CAPACITOR CH 50V 270P	1	
C3011,12		ECST0JY475Z	T.CAPACITOR CH 6.3V 4.7U	2	
C3013		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C3014		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3015		ECUX1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3016		ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C3017		ECUX1H560JCV	C.CAPACITOR CH 50V 56P	1	
C3018		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3019		ECUX1H120JCV	C.CAPACITOR CH 50V 12P	1	
C3021,22		ECUX1H220JCV	C.CAPACITOR CH 50V 22P	2	
C3023		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3024		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C3025,26		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C3027		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C3028		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C3029		ECUX1H390JCV	C.CAPACITOR CH 50V 39P	1	
C3030		ECUX1H221JCV	C.CAPACITOR CH 50V 220P	1	
C3031		ECUX1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3033,34		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C3036		ECUX1H330JCV	C.CAPACITOR CH 50V 33P	1	
C3037		ECUX1H390JCV	C.CAPACITOR CH 50V 39P	1	
C3042		ECUX1H560JCV	C.CAPACITOR CH 50V 56P	1	
C3043		ECUX1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3045		ECUX1H150JCV	C.CAPACITOR CH 50V 15P	1	
C3047		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C3055		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3059		ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C3060		ECEV1CAN4R7	E.CAPACITOR CH 16V 4.7U	1	
C3061		ECUX1H120JCV	C.CAPACITOR CH 50V 12P	1	
C3062		ECUX1H390JCV	C.CAPACITOR CH 50V 39P	1	
C3065		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3067		ECEV1CA100	E.CAPACITOR CH 16V 10U	1	
C3069		ECEV0JA220	E.CAPACITOR 6.3V 22U	1	
C3071		ECUX1H680JCV	C.CAPACITOR CH 50V 68P	1	
C3072		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3075		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C3076		ECEV1EA4R7	E.CAPACITOR CH 25V 4.7U	1	
C3080		ECUX1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3081		ECUX1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3083		ECUX1H180JCV	C.CAPACITOR CH 50V 18P	1	
C3085		ECUX1H100CCV	C.CAPACITOR CH 50V 10P	1	
C3086		ECUX1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3087		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3091		ECST1AD336Z	T.CAPACITOR CH 10V 33U	1	
C3092		ECST1CD226Z	T.CAPACITOR CH 16V 22U	1	
C3093		ECST0JC336Z	T.CAPACITOR CH 6.3V 33U	1	
C3094		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3095		ECUX1H123KBV	C.CAPACITOR CH 50V 0.012U	1	
C3096		ECST1AD476Z	T.CAPACITOR CH 10V 47U	1	
C3098		ECST0JC336Z	T.CAPACITOR CH 6.3V 33U	1	
C3201		ECUX1H560JCV	C.CAPACITOR CH 50V 56P	1	
C3203		ECUX1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3208		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3212		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3801		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C3802		ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3803		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C3804		ECUX1H101JCV	C.CAPACITOR CH 50V 100P	1	
C3805		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C3806,07		ECUX1H101JCV	C.CAPACITOR CH 50V 100P	2	
C3808,09		ECUX1H270JCV	C.CAPACITOR CH 50V 27P	2	
C3810		ECST0JC336Z	T.CAPACITOR CH 6.3V 33U	1	
C3811-13		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C3814		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C3815		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3816		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3817		ECEV1CA100	E.CAPACITOR CH 16V 10U	1	
C3818		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C4001		ECEV1HA2R2	E.CAPACITOR 50V 2.2U	1	
C4002		ECUX1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4003		ECUX1H392KBV	C.CAPACITOR CH 50V 3900P	1	
C4004		ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C4005		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C4006		ECUX1H151JCV	C.CAPACITOR CH 50V 150P	1	
C4007		ECEV1CA100	E.CAPACITOR CH 16V 10U	1	
C4008		ECST1CY225Z	T.CAPACITOR CH 16V 2.2U	1	
C4009		ECUX1H221JCV	C.CAPACITOR CH 50V 220P	1	
C4010		ECEV05A470	E.CAPACITOR CH 4V 47U	1	
C4011		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C4012		ECEV1HA2R2	E.CAPACITOR 50V 2.2U	1	
C4013		ECEV0JA220	E.CAPACITOR 6.3V 22U	1	
C4014		ECEV0JAN220	E.CAPACITOR CH 6.3V 22U	1	
C4015		ECEV1CA100	E.CAPACITOR CH 16V 10U	1	
C4016		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C4017		ECEV1CA100	E.CAPACITOR CH 16V 10U	1	
C4018		ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C4019		ECUM2A682JCM	C.CAPACITOR CH 16V 6800P	1	
C4020		ECUX1H123KBV	C.CAPACITOR CH 50V 0.012U	1	
C4021		ECUM1H223KBN	C.CAPACITOR CH 50V 0.022U	1	
C4022		ECST1AX106Z	T.CAPACITOR CH 10V 10U	1	
C4023		ECEV0GA101	E.CAPACITOR CH 4V 100U	1	
C4024		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C4029,30		ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	2	
C4031		ECUX1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4032		ECUX1H562KBV	C.CAPACITOR CH 50V 5600P	1	
C4034		ECEV0GA101	E.CAPACITOR CH 4V 100U	1	
C4035,36		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C4047,48		ECST0JX226Z	T.CAPACITOR CH 6.3V 22U	2	
C4049,50		ECUX1H270JCV	C.CAPACITOR CH 50V 27P	2	
C4051,52		ECUX1H390JCV	C.CAPACITOR CH 50V 39P	2	
C4053		ECST1AX106Z	T.CAPACITOR CH 10V 10U	1	
C4054		ECST0JX156Z	T.CAPACITOR CH 6.3V 15U	1	
C4055		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C4056		ECEV05A470	E.CAPACITOR CH 4V 47U	1	
C4057		ECST1AX106Z	T.CAPACITOR CH 10V 10U	1	
C4059,60		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	2	
C4501,02		ECEV0GAN470	E.CAPACITOR CH 4V 47U	2	
C4503,04		ECEV1AAN100	E.CAPACITOR CH 10V 10U	2	
C4505,06		ECEV0JA220	E.CAPACITOR 6.3V 22U	2	
C4507		ECST1AY475Z	T.CAPACITOR CH 16V 4.7U	1	
C4508		ECEV05A470	E.CAPACITOR CH 4V 47U	1	
C4509		ECEV1EA4R7	E.CAPACITOR CH 25V 4.7U	1	
C4510		ECST1AX106Z	T.CAPACITOR CH 10V 10U	1	
C4511,12		ECEV05A470	E.CAPACITOR CH 4V 47U	2	
C4513		ECST1AD476Z	T.CAPACITOR CH 10V 47U	1	
C4514		ECEV05A470	E.CAPACITOR CH 4V 47U	1	
C4515		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C4517		ECST1AX106Z	T.CAPACITOR CH 10V 10U	1	
C4519		ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C4520		ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C4521		ECUX1H330JCV	C.CAPACITOR CH 50V 33P	1	
C4522		ECUX1H220JCV	C.CAPACITOR CH 50V 22P	1	
C4523		ECUX1H181JCV	C.CAPACITOR CH 50V 180P	1	
C4524		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C4525		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C4526		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C4529		ECST1AD476Z	T.CAPACITOR CH 10V 47U	1	
C4530		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C5001		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C5002,03		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C5004-11		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	8	
C5012-15		ECUX1H220JCV	C.CAPACITOR CH 50V 22P	4	
C5016-23		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	8	
C5024		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C5025-27		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C5028		ECUX1E273KBN	C.CAPACITOR CH 25V 0.027U	1	
C5029		ECUX1H822KBV	C.CAPACITOR CH 50V 8200P	1	
C5030,31		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C5032		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C5033		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C5034		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C5035		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C5036-39		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	4	
C5040-43		ECUX1H121JCV	C.CAPACITOR CH 50V 120P	4	
C5044-47		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	4	
C5048-51		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	4	
C5052		ECUX1H121JCV	C.CAPACITOR CH 50V 120P	1	
C5053		ECUX1H151JCV	C.CAPACITOR CH 50V 150P	1	
C5054		ECUX1H390JCV	C.CAPACITOR CH 50V 39P	1	
C5055,56		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C5058		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C5059		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C5062-65		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	4	
C5066		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C5067		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C5072		ECUX1E123KBV	C.CAPACITOR CH 25V 0.012U	1	
C5073		ECUM1E683KBN	C.CAPACITOR CH 16V 0.068U	1	
C5080		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C5081		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C6001		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C6002		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C6003-05		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C6006-08		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	3	
C6009		ECEV1VA220	E.CAPACITOR CH 35V 22U	1	
C6010,11		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	2	
C6012		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C6013		ECEV05A470	E.CAPACITOR CH 4V 47U	1	
C6014		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C6015		ECUX1H330JCV	C.CAPACITOR CH 50V 33P	1	
C6016		ECUX1H120JCV	C.CAPACITOR CH 50V 12P	1	
C6018		ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C6019		ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C6020,21		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C6022,23		ECUX1H120JCV	C.CAPACITOR CH 50V 12P	2	
C6024		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6025		ECEV05A470	E.CAPACITOR CH 4V 47U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C6026	ECEV05A330	E.CAPACITOR CH 4V 33U	1	
C6027	ECEV1VA220	E.CAPACITOR CH 35V 22U	1	
C6028	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6029,30	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	2	
C6031	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C6032	ECEV05A470	E.CAPACITOR CH 4V 47U	1	
C6033	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C6034	ECUX1H120JCV	C.CAPACITOR CH 50V 12P	1	
C6035	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6038	ECEV1EA4R7	E.CAPACITOR CH 25V 4.7U	1	
C6040	ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C6041	ECST1AX106Z	T.CAPACITOR CH 10V 10U	1	
C6042,43	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	2	
C6201	ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C6202	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C6203	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C6206	ECEV0JA220	E.CAPACITOR 6.3V 22U	1	
C6207	ECEV1HA3R3	E.CAPACITOR CH 50V 3.3U	1	
C6208,09	ECUX1C105KBM	C.CAPACITOR CH 16V 1U	2	
C6210	ECUX1H561JCV	C.CAPACITOR CH 50V 560P	1	
C6211	ECEV1CA100	E.CAPACITOR CH 16V 10U	1	
C6212	ECEV1EA4R7	E.CAPACITOR CH 25V 4.7U	1	
C6213	ECUX1H223ZFV	C.CAPACITOR CH 50V 0.022U	1	
C6214	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6215	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C6217	ECEV1CA100	E.CAPACITOR CH 16V 10U	1	
C6218	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6219	ECUX1H273KBM	C.CAPACITOR CH 50V 0.027U	1	
C8001	ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C8002	ECUX1H390JCV	C.CAPACITOR CH 50V 39P	1	
C8003	ECUX1H100CCV	C.CAPACITOR CH 50V 10P	1	
C8004	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C8005	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C8015	ECUX1H151JCV	C.CAPACITOR CH 50V 150P	1	
C8016	ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C8017	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C8040	ECUX1H680JCV	C.CAPACITOR CH 50V 68P	1	
C8048	ECUX1H332KBV	C.CAPACITOR CH 50V 3300P	1	
C8049	ECEV1EA4R7	E.CAPACITOR CH 25V 4.7U	1	
C8062,63	ECUX1H151JCV	C.CAPACITOR CH 50V 150P	2	
C8066	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C8068	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8071	ECUX1H182KBV	C.CAPACITOR CH 50V 1800P	1	
C8072	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C8074	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C8076	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C8081	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C8082	ECUX1H331JCV	C.CAPACITOR CH 50V 330P	1	
C8101	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C8102	ECUX1H390JCV	C.CAPACITOR CH 50V 39P	1	
C8103	ECUX1H030CCV	C.CAPACITOR CH 50V 3P	1	
C8105	ECUX1H470JCV	C.CAPACITOR CH 50V 47P	1	
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D02	MA110	DIODE	1	<R> 5
D1002	MA736	DIODE	1	<R>
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D1005	SB05-05CP	DIODE	1	<R>
D1006,07	MA142K	DIODE	2	<R>
D1008	MA728	DIODE	1	<R>
D1010,11	MA3200M	DIODE	2	<R>
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D1061,62	SB05-05CP	DIODE	2	<R>
D1063,64	MA728	DIODE	2	<R>
D1065	MA3130-M	DIODE	1	
D1107	MA141WA	DIODE	1	<R>
D1108	MA143	DIODE	1	<R>
D2101	MA143	DIODE	1	<R>
D2102	MA3100	DIODE	1	<R>
D3004	MA143	DIODE	1	<R>
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D3006	MA141K	DIODE	1	<R>
D3201,02	MA729	DIODE	2	<R>

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
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D3901,02	MA745	DIODE	2	<R>
D4001	MA142K	DIODE	1	<R>
D4004	MA142WK	DIODE	1	<R>
D4005	MA142K	DIODE	1	<R>
D4006-08	MA157	DIODE	3	<R>
D4009	MA143	DIODE	1	<R>
D4501	MA142WK	DIODE	1	<R>
D4502	MA143	DIODE	1	<R>
D4503	MA141K	DIODE	1	<R>
D5001	MA159	DIODE	1	<R>
D5002	MA132WA	DIODE	1	<R>
D5003	MA159	DIODE	1	<R>
D5004	MA132WA	DIODE	1	<R>
D5005	MA133	DIODE	1	<R>
D5006-09	MA728	DIODE	4	<R>
D6001	MA143	DIODE	1	<R>
D6002	MA132WK	DIODE	1	<R>
D6004-07	MA141WA	DIODE	4	<R>
D6008	MA121	DIODE	1	<R>
D6009,10	MA745	DIODE	2	<R>
D6012	MA132WK	DIODE	1	<R>
D6013	MA132WA	DIODE	1	<R>
D6014,15	MA141WA	DIODE	2	<R>
D6016,17	MA141K	DIODE	2	<R>
D6018	MA3062	DIODE	1	<R>
D6019	MA3220	DIODE	1	<R>
D6020-23	MA141K	DIODE	4	<R>
D6024	BR1102W	DIODE	1	<R>
D6025,26	MA745	DIODE	2	<R>
D6201	MA141K	DIODE	1	<R>
D8001	MA132WK	DIODE	1	<R>
FL01	VLF0948	FILTER	1	
FL01	VLF0985	FILTER	1	
FL03	VLF0984	FILTER	1	
FL4501	VLF0944	FILTER	1	
FL4502	VLF0945	FILTER	1	
FP2101	VJS2958B010	CONNECTOR (FEMALE) 10P	1	
FP2102	VJS2848B014	CONNECTOR (FEMALE) 14P	1	
FP3001	VJS3406D016	CONNECTOR	1	
FP4001	VJS2959B007	CONNECTOR (FEMALE) 7P	1	
FP5001	VJS2958B023	CONNECTOR (FEMALE) 23P	1	
FP6001	VJS2960A012	CONNECTOR (FEMALE) 12P	1	
IC01	AN2263FHP	IC	1	<R>
IC01	AN2463NFHP	IC	1	
IC01	AN3938FHP	IC	1	<R>
IC1001	BA9703K	IC	1	<R>
IC1102	LM393DB	IC	1	<R>
IC2101	AN3893NFHP	IC	1	<R>
IC2102	UN224	TRANSISTOR-RESISTOR	1	<R>
IC2103	AN3841SR	IC	1	<R>
IC2104	NJM2904M	IC	1	<R>
IC3001	VEFH25C	HIC	1	<R>
IC3002	TL8808F	IC	1	<R>
IC3003	AN3298NSB	IC	1	<R>
IC3004	NJM2235MA	IC	1	<R>
IC3801	CF77544AFR	IC	1	<R>
IC3802	S8420KF	IC	1	
IC3803	MN12821R	IC	1	<R>
IC3805	TC7W04F	IC	1	<R>
IC4001	BA7757BK	IC	1	<R>
IC4002	BA3308F	IC	1	<R>
IC4501	VEFH27B	HIC	1	<R>
IC5001	AN3350FHP	IC	1	<R>
IC6001	BA6219BFPY	IC	1	<R>
IC6002	UPD6456GT623	IC	1	<R>

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC6003	S3500B3	IC	1	<R>
IC6004	MN6755243M1C	IC	1	<R>
IC6005,06	UPD4071BG	IC	2	<R>
IC6007	SC14S66F	IC	1	
IC6008	UPD4071BG	IC	1	<R>
IC6009	MN12821R	IC	1	<R>
IC6010	S81350HGKD	IC	1	<R>
IC6011	SC7S08F	IC	1	
IC8001	VEFH26E	HIC	1	<R>
IC8002	TL8832F	IC	1	<R>
L03	ELJFA1 1JB	COIL	1	
L03	VLQ0426J220	COIL 22UH	1	
L04	VLQ0426J390	COIL 39UH	1	
L04	VLQ0426J560	COIL 56UH	1	
L1001	ELC6UB4R7M	COIL	1	
L1002	ELL04T034R	TRANSFORMER	1	
L1003	ELC6UB4R7M	COIL	1	
L1004	VLQ0319K100	COIL 10UH	1	
L1007	ELL04T030R	TRANSFORMER	1	
L1008	ELC6UB4R7M	COIL	1	
L1009	VLQ0319K100	COIL 10UH	1	
L1010,11	VLQ0319K101	COIL 100UH	2	
L1061,62	ELL04T043R	COIL	2	
L1063,64	VLQ0319K330	COIL 39UH	2	
L1065	VLQ0319K100	COIL 10UH	1	
L1102-04	VLQ0319K100	COIL 10UH	3	
L3001	VLQ0319K181	COIL 180UH	1	
L3002	VLQ0319F150	COIL 15UH	1	
L3003	VLQ0163J820	COIL 82UH	1	
L3004	VLQ0426J150	COIL 15UH	1	
L3005	VLQ0163J121	COIL 120UH	1	
L3006	VLQ0426J3R9	COIL 3.9UH	1	
L3007	VLQ0426J150	COIL 15UH	1	
L3009	VLQ0319F150	COIL 15UH	1	
L3010	VLQ0426J470	COIL 47UH	1	
L3011	VLQ0426J120	COIL 12UH	1	
L3012	VLQ0426J100	COIL 10UH	1	
L3015	VLQ0426J680	COIL 68UH	1	
L3017	VLQ0426J560	COIL 56UH	1	
L3018	VLQ0319K820	COIL 82UH	1	
L3019	VLQ0319K101	COIL 100UH	1	
L3020	VLQ0163J820	COIL 82UH	1	
L3021	VLQ0426J330	COIL 33UH	1	
L3024	VLQ0319K101	COIL 100UH	1	
L3025	VLQ0464	COIL	1	
L3030	VLQ0426J330	COIL 33UH	1	
L3801	ELJFA150KF	COIL 15UH	1	
L4001	VLQ0423J153	COIL 15MH	1	
L4002	VLQ0319K470	COIL 47UH	1	
L4501	VLQ0319K271	COIL 270UH	1	
L4502,03	VLQ0319K101	COIL 100UH	2	
L4504	VLQ0426J560	COIL 56UH	1	
L5001-03	VLQ0319F150	COIL 15UH	3	
L5004	VLQ0319K101	COIL 100UH	1	
L5005	VLQ0163J120	COIL 12UH	1	
L5006	VLQ0319K101	COIL 100UH	1	
L5007,08	VLQ0319F150	COIL 15UH	2	
L6001	VLQ0426J101	COIL 100UH	1	
L6002	VLQ0426J330	COIL 33UH	1	
L6003	VLQ0319K100	COIL 10UH	1	
L6004	VLQ0463	COIL	1	
L6005	VLQ0319K330	COIL 39UH	1	
L8001	VLQ0426J390	COIL 39UH	1	
L8003	VLQ0426J6R8	COIL 6.8UH	1	
L8004	VLQ0319F150	COIL 15UH	1	
L8006	VLQ0426J820	COIL 82UH	1	
L8007	VLQ0319F150	COIL 15UH	1	
L8012	VLQ0319K470	COIL 47UH	1	
L8013	VLQ0426J101	COIL 100UH	1	
L8014	ELJFA151KB	COIL	1	
L8015	VLQ0426J150	COIL 15UH	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
P1001	VJP3327B002	CONNECTOR (MALE) 2P	1	
P3001	VJP3172B005	CONNECTOR (MALE) 5P	1	
P3002	VJP3172B009	CONNECTOR (MALE) 9P	1	
P4001	VJP3172B005	CONNECTOR (MALE) 5P	1	
P4001	VJS3172B005	CONNECTOR (FEMALE) 5P	1	
P4002	VJP3172B002	CONNECTOR (MALE) 2P	1	
P4301	VJS3172B005	CONNECTOR (FEMALE) 5P	1	
P4501	VJP3172B002	CONNECTOR (MALE) 2P	1	
P6001	VJP3172B004	CONNECTOR (MALE) 4P	1	
P6004,05	VJP3172B002	CONNECTOR (MALE) 2P	2	
P6006	VJP3172B003	CONNECTOR (MALE) 3P	1	
P6007,08	VJP3172B006	CONNECTOR (MALE) 6P	2	
P6009	VJP3172B008	CONNECTOR (MALE) 8P	1	
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Q01,02	2SC4619	TRANSISTOR	2	<R>
Q02	2SD2345-S	TRANSISTOR	1	<R>
Q03	2SC4619	TRANSISTOR	1	<R>
Q03	2SD2345-S	TRANSISTOR	1	<R>
Q04	UN9211	TRANSISTOR-RESISTOR	1	<R>
Q04	2SC3938	TRANSISTOR	1	<R>
Q05	UN9113	TRANSISTOR-RESISTOR	1	<R>
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Q07	2SC4619	TRANSISTOR	1	<R>
Q1001	2SB1202-S	TRANSISTOR	1	<R>
Q1002	2SB1073	TRANSISTOR	1	<R>
Q1003	2SB1202-S	TRANSISTOR	1	<R>
Q1004	2SD1624-S	TRANSISTOR	1	<R>
Q1005	2SB1073	TRANSISTOR	1	<R>
Q1006	2SB970X	TRANSISTOR	1	<R>
Q1061,62	2SB956-Q	TRANSISTOR	2	<R>
Q1063	2SD1483	TRANSISTOR	1	<R>
Q2101	2SD1819	TRANSISTOR	1	<R>
Q3001	2SB970X	TRANSISTOR	1	<R>
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Q3008,09	2SC4627	TRANSISTOR	2	<R>
Q3010	2SC3931	TRANSISTOR	1	<R>
Q3011	2SB1462	TRANSISTOR	1	<R>
Q3012	2SD2216	TRANSISTOR	1	<R>
Q3014	2SB1462	TRANSISTOR	1	<R>
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Q3019,20	2SB1218	TRANSISTOR	2	<R>
Q3021	2SC3938	TRANSISTOR	1	<R>
Q3022	2SB970X	TRANSISTOR	1	<R>
Q3025	2SD1819	TRANSISTOR	1	<R>
Q3026,27	2SD2216	TRANSISTOR	2	<R>
Q3028	2SB1219	TRANSISTOR	1	<R>
Q3801	2SD2216	TRANSISTOR	1	<R>
Q3802	2SB1218	TRANSISTOR	1	<R>
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Q4013,14	2SD1328	TRANSISTOR	2	<R>
Q4015	2SD1819	TRANSISTOR	1	<R>
Q4017	2SD1819	TRANSISTOR	1	<R>
Q4018	2SB1218	TRANSISTOR	1	<R>
Q4501	2SD1328	TRANSISTOR	1	<R>
Q5001,02	XN4504	TRANSISTOR-TRANSISTOR	2	<R>
Q5003	2SB970X	TRANSISTOR	1	<R>
Q5004,05	2SA812	TRANSISTOR	2	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q5006,07		XN4504	TRANSISTOR-TRANSISTOR	2	<R>
Q5008,09		2SD1328	TRANSISTOR	2	<R>
Q5010		2SB970X	TRANSISTOR	1	<R>
Q6002		2SD1820-R	TRANSISTOR	1	<R>
Q6003		XN1213	TRANSISTOR-TRANSISTOR	1	<R>
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Q8001,02		2SD1819	TRANSISTOR	2	<R>
Q8009		2SB1462	TRANSISTOR	1	<R>
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QR3018,19		UN5212	TRANSISTOR-RESISTOR	2	<R>
QR3023		XN1501	TRANSISTOR-TRANSISTOR	1	<R>
QR3024,25		UN5212	TRANSISTOR-RESISTOR	2	<R>
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QR6011,12		UN9112	TRANSISTOR-RESISTOR	2	<R>
QR6013		UN521E	TRANSISTOR-RESISTOR	1	<R>
QR6015		UN5211	TRANSISTOR-RESISTOR	1	<R>
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QR6018		UN5211	TRANSISTOR-RESISTOR	1	<R>
R01		ERJ2GEJ561	M.RESISTOR CH 2W 560	1	
R02		ERJ2GEJ152	M.RESISTOR CH 2W 1.5K	1	
R03		ERJ2GEJ103	M.RESISTOR CH 2W 10K	1	
R05		ERJ2GEJ242	M.RESISTOR CH 1/32W 2.4K	1	
R06		ERJ2GEJ682	M.RESISTOR CH 2W 6.8K	1	
R07		ERJ2GEJ683	M.RESISTOR CH 2W 68K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R08		ERJ2GEJ473	M.RESISTOR CH 2W 47K	1	
R08		ERJ2GEJ561	M.RESISTOR CH 2W 560	1	
R09		ERJ2GEJ473	M.RESISTOR CH 2W 47K	1	
R09		ERJ2GEJ822	M.RESISTOR CH 2W 8.2K	1	
R10		ERJ2GEJ105	M.RESISTOR CH 2W 1M	1	
R12		ERJ2GEJ152	M.RESISTOR CH 2W 1.5K	1	
R12		ERJ2GEJ561	M.RESISTOR CH 2W 560	1	
R13		ERJ2GEJ822	M.RESISTOR CH 2W 8.2K	1	
R16		ERJ2GEJ242	M.RESISTOR CH 1/32W 2.4K	1	
R16		ERJ3GEYJ154	M.RESISTOR CH 1/16W 150K	1	
R17		ERJ2GEJ392	M.RESISTOR CH 2W 3.9K	1	
R18		ERJ2GEJ102	M.RESISTOR CH 2W 1K	1	
R19		ERJ2GEJ182	M.RESISTOR CH 1/32W 1.8K	1	
R20		ERJ2GEJ181	M.RESISTOR CH 1/32W 180	1	
R23		ERJ2GEJ392	M.RESISTOR CH 2W 3.9K	1	
R24		ERJ2GEJ122	M.RESISTOR CH 2W 1.2K	1	
R24		ERJ3GEYJ122	M.RESISTOR CH 1/16W 1.2K	1	
R25		ERJ2GEJ102	M.RESISTOR CH 2W 1K	1	
R26		ERJ2GEJ104	M.RESISTOR CH 2W 100K	1	
R27		ERJ2GEJ132	M.RESISTOR CH 1/32W 1.3K	1	
R27		ERJ2GEJ391	M.RESISTOR CH 2W 390	1	
R28		ERJ2GEJ102	M.RESISTOR CH 2W 1K	1	
R28		ERJ3GEYJ132	M.RESISTOR CH 1/16W 1.3K	1	
R29		ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R30		ERJ2GEJ222	M.RESISTOR CH 2W 2.2K	1	
R31		ERJ2GEJ122	M.RESISTOR CH 2W 1.2K	1	
R32		ERJ2GEJ681	M.RESISTOR CH 2W 680	1	
R33		ERJ2GEJ124	M.RESISTOR CH 2W 120K	1	
R34		ERJ2GEJ121	M.RESISTOR CH 1/32W 120	1	
R35		ERJ2GEJ153	M.RESISTOR CH 2W 15K	1	
R40		ERJ2GEJ104	M.RESISTOR CH 2W 100K	1	
R40		ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R41		ERJ2GEJ225	M.RESISTOR CH 2W 2.2M	1	
R46		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R1001		ERJ6GEYG682	M.REISITOR CH 1/10W 6.8K	1	
R1002		ERJ6GEYG202	M.RESISTOR CH 1/10W 2K	1	
R1003		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R1004		ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R1005		ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
R1006		ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	1	
R1007		ERJ8GEYJ101	M.RESISTOR CH 1/8W 100	1	
R1008		ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
R1009		ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	1	
R1012		ERJ3GEYG163	M.RESISTOR CH 1/16W 16K	1	
R1013		ERJ3GEYG393	M.RESISTOR CH 1/16W 39K	1	
R1014,15		ERJ6GEYG182	M.RESISTOR CH 1/10W 1.8K	2	
R1016		VRE0034E153	M.RESISTOR CH 1/10W 15K	1	
R1017		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R1018		ERJ3GEYJ151	M.RESISTOR CH 1/16W 150	1	
R1019		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R1020		ERJ3GEYJ151	M.RESISTOR CH 1/16W 150	1	
R1021		ERJ3GEYJ680	M.RESISTOR CH 1/16W 68	1	
R1022		ERJ3GEYJ560	M.RESISTOR CH 1/16W 56	1	
R1023		ERJ3GEYJ392	M.RESISTOR CH 1/16W 3.9K	1	
R1024		ERJ3GEYJ470	M.RESISTOR CH 1/16W 47	1	
R1025,26		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R1027		ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R1029		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R1030		ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
R1031		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	1	
R1032,33		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R1034		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R1035		ERJ3GEYJ470	M.RESISTOR CH 1/16W 47	1	
R1036		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R1037		ERJ3GEYG470	M.RESISTOR CH 1/16W 47	1	
R1061		ERJ6GEYJ391	M.RESISTOR CH 1/10W 390	1	
R1062		ERJ6GEYJ681	M.RESISTOR CH 1/10W 680	1	
R1063		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R1064,65		ERJ3GEYJ122	M.RESISTOR CH 1/16W 1.2K	2	
R1066		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R1067		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R1068		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R1105		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R1106,07		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	2	
R1108		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R2101		ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R2102-04		ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	3	
R2105		ERJ8GEYJR33	M.RESISTOR CH 1/8W 0.33	1	
R2106		ERJ8GEYJR47	M.RESISTOR CH 1/8W 0.47	1	
R2107		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R2108		ERJ3GEYJ564	M.RESISTOR CH 1/16W 560K	1	
R2109		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R2110		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R2111		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R2112		ERJ3GEYJ154	M.RESISTOR CH 1/16W 150K	1	
R2113		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R2114		ERJ8GEYJ1R0	M.RESISTOR CH 1/8W 1	1	
R2115		ERJ8GEYJR47	M.RESISTOR CH 1/8W 0.47	1	
R2116,17		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R2118		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R2119		ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
R2121		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R2122		ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R2123		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R2124		ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R2125		ERJ3GEYJ820	M.RESISTOR CH 1/16W 82	1	
R2126		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R2130		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R3001		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R3002		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R3003,04		ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	2	
R3005		ERJ3GEYG471	M.RESISTOR CH 1/16W 470	1	
R3006		ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R3007		ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R3008		ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R3010		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R3011		ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
R3012		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R3013		ERJ3GEYJ392	M.RESISTOR CH 1/16W 3.9K	1	
R3014,15		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R3016		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3017		ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R3018		ERJ3GEYJ122	M.RESISTOR CH 1/16W 1.2K	1	
R3019		ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
R3021		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3022		ERJ3GEYJ182	M.RESISTOR CH 1/16W 1.8K	1	
R3023		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R3024		ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	1	
R3025		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3026		ERJ3GEYJ182	M.RESISTOR CH 1/16W 1.8K	1	
R3027		ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	1	
R3028		ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R3030		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R3031		ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R3032		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3033		ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R3037		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3041		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R3042		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3043		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3045		ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	1	
R3046		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R3047		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R3049		ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R3051		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R3052		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3054		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3055		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R3059		ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R3060-62		ERJ3GEYJ680	M.RESISTOR CH 1/16W 68	3	
R3063		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R3064		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R3068,69		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R3070		ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R3071		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R3072		ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R3073		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R3074,75		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R3076		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R3077		ERJ3GEYJ122	M.RESISTOR CH 1/16W 1.2K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3078		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3079		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R3080		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R3081		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3082		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R3087		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3089		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R3090		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R3091		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R3098		ERJ3GEYJ106	M.RESISTOR CH 1/16W 10M	1	
R3102		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3103		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R3104		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R3107		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3109		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R3110		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R3112		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3113		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3115		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3117		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R3119		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3121		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R3122		ERJ3GEYJ123	M.RESISTOR CH 1/16W 12K	1	
R3123		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R3124		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3127		ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
R3128		ERJ3GEYJ474	M.RESISTOR CH 1/16W 470K	1	
R3129		ERJ6GEYJ183	M.RESISTOR CH 1/10W 18K	1	
R3135		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R3136		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3137		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3139		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3142		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3144,45		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	
R3148		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R3149		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R3150		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3152		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R3153		ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R3154		ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
R3155		ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R3156		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R3157		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R3160		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R3162,63		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	
R3166		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R3167		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3168		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R3169		ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R3170		ERJ3GEYJ224	M.RESISTOR CH 1/16W 220K	1	
R3171		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3201		ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R3202		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R3203		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R3221,22		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	
R3226		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3227		ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R3228,29		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	
R3232		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3801,02		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	2	
R3803		ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R3804		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R3806		ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R3807		ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R3809		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R3810,11		ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	2	
R3812		ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R3813		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R3814		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R3815		ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R3816		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R3818,19		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R3820,21		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	2	
R3822-25		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	4	
R3838,39		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3840		ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R3841		ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R3842		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R3844		ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
R3845		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R3846-49		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	4	
R3901-03		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	3	
R4001		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R4002		ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R4003		ERJ3GEYJ100	M.RESISTOR CH 1/16W 10	1	
R4004		ERJ3GEYJ823	M.RESISTOR CH 1/16W 82K	1	
R4005		ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R4006		ERJ3GEYJ182	M.RESISTOR CH 1/16W 1.8K	1	
R4007		ERJ3GEYJ151	M.RESISTOR CH 1/16W 150	1	
R4008		ERJ3GEYJ334	M.RESISTOR CH 1/16W 330K	1	
R4009		ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R4010		ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
R4011		ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R4012		ERJ3GEYJ123	M.RESISTOR CH 1/16W 12K	1	
R4013		ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R4014		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R4015		ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
R4016,17		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	2	
R4018		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R4019		ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R4020		ERJ3GEYJ390	M.RESISTOR CH 1/16W 39	1	
R4021		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R4022		ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R4023		ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R4024		ERJ3GEYJ392	M.RESISTOR CH 1/16W 3.9K	1	
R4025		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R4026		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R4030,31		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R4032		ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R4033		ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R4034		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R4037		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R4041		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R4043		ERJ3GEYJ225	M.RESISTOR CH 1/16W 2.2M	1	
R4059,60		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R4061,62		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	2	
R4063,64		ERJ3GEYJ122	M.RESISTOR CH 1/16W 1.2K	2	
R4065		ERJ3GEYJ224	M.RESISTOR CH 1/16W 220K	1	
R4067		ERJ3GEYJ224	M.RESISTOR CH 1/16W 220K	1	
R4068		ERJ3GEYJ334	M.RESISTOR CH 1/16W 330K	1	
R4069		ERJ3GEYJ224	M.RESISTOR CH 1/16W 220K	1	
R4070		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R4071,72		ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	2	
R4073		ERJ3GEYJ823	M.RESISTOR CH 1/16W 82K	1	
R4074		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R4075,76		ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	2	
R4077		ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R4078		ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R4079,80		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	2	
R4081,82		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	2	
R4085		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R4089,90		ERJ3GEYJ123	M.RESISTOR CH 1/16W 12K	2	
R4096		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R4501,02		ERJ6GEYJ330	M.RESISTOR CH 1/10W 33	2	
R4503,04		ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	2	
R4505		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R4506		ERJ6GEYJ270	M.RESISTOR CH 1/10W 27	1	
R4507		ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R4509		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R4510		ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R4511		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R4512		ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R4513-16		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	4	
R4518		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R4521		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R4525		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R4528		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R4529		ERJ3GEYJ124	M.RESISTOR CH 1/16W 120K	1	
R4531		ERJ6GEYJ270	M.RESISTOR CH 1/10W 27	1	
R4532		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R4535		ERJ8GEYJ330	M.RESISTOR CH 1/8W 33	1	
R5001		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R5002		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R5003		ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
R5004-07		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	4	
R5008-11		ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	4	
R5012		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R5013		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R5014		ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	1	
R5015		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R5016-19		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	4	
R5020-23		ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	4	
R5024		ERJ3GEYJ4R7	M.RESISTOR CH 1/16W 4.7	1	
R5025		ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R5026		ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	1	
R5027		ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
R5028		ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
R5029,30		ERJ3GEYJ100	M.RESISTOR CH 1/16W 10	2	
R5031		ERJ3GEYJ394	M.RESISTOR CH 1/16W 390K	1	
R5032		ERJ3GEYJ184	M.RESISTOR CH 1/16W 180K	1	
R5033,34		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R5035		ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R5036		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R5037		ERJ3GEYJ394	M.RESISTOR CH 1/16W 390K	1	
R5038		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R5039		ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
R5040-42		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	3	
R5043-45		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	3	
R5046-48		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	3	
R5049		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R5050		ERJ3GEYJ474	M.RESISTOR CH 1/16W 470K	1	
R5051		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R5052		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R5053		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R5054		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R5055		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R5066-71		ERJ3GEYJ394	M.RESISTOR CH 1/16W 390K	6	
R5074		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R6001,02		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R6003,04		ERJ3GEYJ392	M.RESISTOR CH 1/16W 3.9K	2	
R6005		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R6006,07		ERJ3GEYJ184	M.RESISTOR CH 1/16W 180K	2	
R6008		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R6009		ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
R6014		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R6015		VRE0067G473	M.RESISTOR 47K	1	
R6016		VRE0067G153	M.RESISTOR 15K	1	
R6017,18		ERJ8GEYJ101	M.RESISTOR CH 1/8W 100	2	
R6019-21		ERJ8GEYJ151	M.RESISTOR CH 1/8W 150	3	
R6022		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R6023		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R6024		ERJ3GEYJ394	M.RESISTOR CH 1/16W 390K	1	
R6025,26		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	2	
R6027		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R6028-30		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	3	
R6031		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R6032-36		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	5	
R6037		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	1	
R6038-42		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	5	
R6043		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R6044		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	1	
R6045		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R6046-49		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	4	
R6050		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R6051-53		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	3	
R6054-62		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	9	
R6063		ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R6065,66		ERJ3GEYJ184	M.RESISTOR CH 1/16W 180K	2	
R6067,68		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R6069		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R6070		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R6071		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R6072-78		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	7	
R6079		ERJ8GEYJ100	M.RESISTOR CH 1/8W 10	1	
R6080,81		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R6082		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R6083,84		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	2	
R6085,86		ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	2	
R6087		ERJ8GEYJ221	M.RESISTOR CH 1/8W 220	1	
R6088,89		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R6090		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	1	
R6091		ERJ8GEYJ271	M.RESISTOR CH 1/8W 270	1	
R6092		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R6093		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R6095		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R6096		ERJ8GEYJ331	M.RESISTOR CH 1/8W 330	1	
R6097		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R6098		ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
R6099		ERJ3GEYJ182	M.RESISTOR CH 1/16W 1.8K	1	
R6100		ERJ3GEYJ330	M.RESISTOR CH 1/16W 33	1	
R6101		ERJ3GEYJ392	M.RESISTOR CH 1/16W 3.9K	1	
R6102		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R6103		ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
R6104		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R6105		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R6106,07		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	2	
R6108		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R6109-12		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	4	
R6113		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R6114,15		ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	2	
R6116		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R6121		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R6122		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R6125,26		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R6127		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R6128		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R6129		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R6130		ERJ8GEY0R00	M.RESISTOR CH 1/8W 0	1	
R6201		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R6202		ERJ3GEYJ114	M.RESISTOR CH 1/16W 110K	1	
R6203		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R6204		ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	1	
R6205-07		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	3	
R6208		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R6209		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R6210,11		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R6212		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R6215,16		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	
R6217		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R8003		ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R8014,15		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R8016		ERJ3GEYJ182	M.RESISTOR CH 1/16W 1.8K	1	
R8017		ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R8030		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R8032		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R8044		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R8045		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R8054		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R8055		ERJ3GEYJ124	M.RESISTOR CH 1/16W 120K	1	
R8056		ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
R8057,58		ERJ3GEYJ474	M.RESISTOR CH 1/16W 470K	2	
R8062		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R8067		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R8070		ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R8071,72		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R8073		ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
R8074		ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R8090		ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R8091		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R8092		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R8093		ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R8094		ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R8095		ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R8096		ERJ3GEYJ123	M.RESISTOR CH 1/16W 12K	1	
R8097		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
T1001		ELL04T032R	TRANSFORMER	1	
T4001		EIQ6QB006	TRANSFORMER	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
VR1001		EVM7JGA00B52	V.RESISTOR 500	1	
VR1002		EVM7JGA00B13	V.RESISTOR 1K	1	
VR1003		EVM7JGA00BE2	V.RESISTOR	1	
VR3001		EVM7JGA00B13	V.RESISTOR 1K	1	
VR3004		EVM7JGA00B14	V.RESISTOR 10K	1	
VR3005		EVM7JGA00B23	V.RESISTOR 2K	1	
VR3006		EVM7JGA00B14	V.RESISTOR 10K	1	
VR3007		EVM7JGA00B54	V.RESISTOR 50K	1	
VR3802		EVM7JGA00B13	V.RESISTOR 1K	1	
VR4001		EVM7JGA00B52	V.RESISTOR 500	1	
VR4002		EVM7JGA00B54	V.RESISTOR 50K	1	
VR4501,02		EVM7JGA00B23	V.RESISTOR 2K	2	
VR6201		EVM7JGA00B15	V.RESISTOR 100K	1	
VR8001		EVM7JGA00B23	V.RESISTOR 2K	1	
X3801		VSX0430	CRYSTAL OSCILLATOR	1	<R>
X6002		VSX0461	CRYSTAL OSCILLATOR	1	<R>
X6003		VSX0510	CRYSTAL OSCILLATOR	1	<R>
X8001		VSX0375	CRYSTAL OSCILLATOR	1	<R>
			MISCELLANEOUS		
		VSC3639	POWER SHIELD COVER (A)	1	
		VSC3640	POWER SHIELD COVER (B)	1	
		VSC3630	H.A. SHIELD COVER (A)	1	
		VSC3631	H.A. SHIELD COVER (B)	1	
		VSC4253	HEAT SINK	1	
		VMZ2390	INSULATION SHEET (A)	1	
		VMZ2392	INSULATION SHEET (C)	1	
		VKC0412	POST	1	
		VMZ2084	INSULATION SHEET	1	
		VEP22117C	P.C.BOARD W/COMPONENT		
			CCD DRIVE		
B201		VJP3159A032	CONNECTOR (MALE) 32P	1	
B202		VJP2962C012	CONNECTOR	1	
C201		ECST1CX685Z	T.CAPACITOR CH 16V 68U	1	
C202,03		ECUX1H270JCV	C.CAPACITOR CH 50V 27P	2	
C205		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C206,07		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	2	
C209		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C210		ECST1VX155Z	T.CAPACITOR CH 35V 1.5U	1	
C211		ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C212		ECST1VX225Z	T.CAPACITOR CH 35V 2.2U	1	
C213,14		ECUX1H270JCV	C.CAPACITOR CH 50V 27P	2	
C215		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C216,17		ECUX1H270JCV	C.CAPACITOR CH 50V 27P	2	
C218		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C220		ECUX1H150JCV	C.CAPACITOR CH 50V 15P	1	
C221		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C222		ECUX1H060CCV	C.CAPACITOR CH 50V 6P	1	
C223		ECRJA020E11	TRIMMER 2P	1	
C224		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C226		ECUM1C185ZFN	C.CAPACITOR CH 16V 1.8U	1	
C227,28		ECST0JY106Z	T.CAPACITOR 6.3V 10U	2	
C229		ECEV0GA330	E.CAPACITOR CH 4V 33U	1	
C230		ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C231,32		ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	2	
C233		ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C234	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C235	ECST1CX685Z	T.CAPACITOR CH 16V 68U	1	
C236	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C237	ECST0GY106Z	T.CAPACITOR CH 4V 10U	1	
C238-40	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	3	
C241	ECUX1H180JCV	C.CAPACITOR CH 50V 18P	1	
C242	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C243	ECUX1H473ZFV	C.CAPACITOR CH 50V 0.047U	1	
C244	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C245	ECST1CX685Z	T.CAPACITOR CH 16V 68U	1	
C246	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C247	ECUX1H060CCV	C.CAPACITOR CH 50V 6P	1	
C248	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C249	ECUX1H050CCV	C.CAPACITOR CH 50V 5P	1	
C251	ECST1VX155Z	T.CAPACITOR CH 35V 1.5U	1	
C252	ECUX1H100CCV	C.CAPACITOR CH 50V 10P	1	
C254	ECUX1H100CCV	C.CAPACITOR CH 50V 10P	1	
C258,59	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C260,61	ECUX1H560JCV	C.CAPACITOR CH 50V 56P	2	
C262	ECUX1H330JCV	C.CAPACITOR CH 50V 33P	1	
C263	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C264	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C266	ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C267-69	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	3	
C270	ECUX1H050CCV	C.CAPACITOR CH 50V 5P	1	
C271	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
D201	MA110	DIODE	1	<R>
D203,04	MA110	DIODE	2	<R>
D205	MA728	DIODE	1	<R>
D206,07	MA110	DIODE	2	<R>
D209	MA110	DIODE	1	<R>
FL201	ELB3H010	FILTER	1	
IC201	MN5188	IC	1	<R>
IC202	MN3110SA	IC	1	<R>
IC203	AN2013SB	IC	1	<R>
IC204	AN2032FAP	IC	1	<R>
IC205	LM358DB	IC	1	<R>
L201-07	ELJFC150KB	COIL	7	
L208	VLQ0426J330	COIL 33UH	1	
L209	VLQ0556	COIL	1	
L210	ELJFC150KB	COIL	1	
L211,12	VLQ0556	COIL	2	
L214,15	VLQ0555	COIL	2	
L221	VLQ0401K4R7	COIL 4.7UH	1	
L222	ELJFC3R3KB	COIL 3.3UH	1	
L224	VLQ0555	COIL	1	
Q201	XP4654	TRANSISTOR-TRANSISTOR	1	<R>
Q202,03	2SD1819	TRANSISTOR	2	<R>
Q205	XP4654	TRANSISTOR-TRANSISTOR	1	<R>
Q206	XN4601	TRANSISTOR-TRANSISTOR	1	<R>
Q207	XP4654	TRANSISTOR-TRANSISTOR	1	<R>
Q211	2SB1218	TRANSISTOR	1	<R>
Q214	2SD1819	TRANSISTOR	1	<R>
Q215	XN4601	TRANSISTOR-TRANSISTOR	1	<R>
Q219	2SB1218	TRANSISTOR	1	<R>
R201	ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R202	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R203	ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
R204	ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R206	ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	1	
R209	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R210	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R211	ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R212	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R214	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R215	ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
R216	ERJ3GEYJ334	M.RESISTOR CH 1/16W 330K	1	
R218	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R219	ERJ3GEYJ330	M.RESISTOR CH 1/16W 33	1	
R220	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R221	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R223	ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R224	ERJ3GEYJ330	M.RESISTOR CH 1/16W 33	1	
R225	ERJ3GEYJ154	M.RESISTOR CH 1/16W 150K	1	
R226	ERJ3GEYJ684	M.RESISTOR CH 1/16W 680K	1	
R227	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R228	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R229	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R230	ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R232	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R236	ERJ3GEYJ182	M.RESISTOR CH 1/16W 1.8K	1	
R237	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R239	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R241	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R242	ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
R243	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R244	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R245	ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R249	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R253	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R254	ERJ3GEYJ824	M.RESISTOR CH 1/16W 820K	1	
R255,56	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	2	
R257	ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R258	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R259	ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
R265	ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R266	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R267	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R268	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R269	ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
R270	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R271	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R272	ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
R273	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R274-76	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	3	
R277	VRE0071E123	M.RESISTOR 12K	1	
R278	VRE0071E823	M.RESISTOR 82K	1	
R279	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R280	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R281,82	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	2	
R283-89	ERJ3GEYJ330	M.RESISTOR CH 1/16W 33	7	
R290	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R291	ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R292	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R293	ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
X201	VSX0480	CRYSTAL OSCILLATOR	1	<R>
		MISCELLANEOUS		
	VSC3635	SHIELD COVER (A)	1	
	VSC3636	SHIELD COVER (B)	1	
	VEP23146H	P.C.BOARD W/COMPONENT		
		PROCESS		

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
B301	VJS3024C032	CONNECTOR	1	
B302	VJP2962A030	CONNECTOR (MALE) 30P	1	
B303	VJP2962A024	CONNECTOR (MALE) 24P	1	
C301-03	ECST0JY106Z	T.CAPACITOR 6.3V 10U	3	
C304	ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C305	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C306	ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C307,08	ECST0JY106Z	T.CAPACITOR 6.3V 10U	2	
C309	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C311	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C312	ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C313	ECUX1H151JCV	C.CAPACITOR CH 50V 150P	1	
C314,15	ECST0JY106Z	T.CAPACITOR 6.3V 10U	2	
C317	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C318	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C321	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C322	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C323	ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C324	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C325	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C326	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C328,29	ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C330,31	ECUX1H101JCV	C.CAPACITOR CH 50V 100P	2	
C332	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C334	ECST0GY106Z	T.CAPACITOR CH 4V 10U	1	
C335	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C336	ECUX1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C337,38	ECUX1H560JCV	C.CAPACITOR CH 50V 56P	2	
C340	ECUX1H560JCV	C.CAPACITOR CH 50V 56P	1	
C341,42	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C343	ECUX1H101JCV	C.CAPACITOR CH 50V 100P	1	
C345-52	ECUX1H330JCV	C.CAPACITOR CH 50V 33P	8	
C357	ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C358-62	ECUX1C104ZFV	C.CAPACI OR CH 16V 0.1U	5	
C363	ECUX1H680JCV	C.CAPACITOR CH 50V 68P	1	
C380,81	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	2	
C701	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C703	ECUX1H151JCV	C.CAPACITOR CH 50V 150P	1	
C704	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C705	ECUX1C683ZFV	C.CAPACITOR CH 16V 0.068U	1	
C706-09	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	4	
C710	ECUX1H473ZFV	C.CAPACITOR CH 50V 0.047U	1	
C711	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C712	ECUX1H560JCV	C.CAPACITOR CH 50V 56P	1	
C713,14	ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	2	
C715	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C716	ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C717	ECST1CY335Z	T.CAPACITOR CH 16V 3.3U	1	
C718	ECST0JY106Z	T.CAPACITOR 6.3V 10U	1	
C719	ECST0GY106Z	T.CAPACITOR CH 4V 10U	1	
C720,21	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	2	
C722-24	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	3	
C726	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C727	ECEV1EA330	E.CAPACITOR CH 25V 33U	1	
C728	ECUX1H332KBV	C.CAPACITOR CH 50V 3300P	1	
C729,30	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C731	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C732	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C733	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C734	ECUX1H560JCV	C.CAPACITOR CH 50V 56P	1	
C738	ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C746	ECUM1C225ZFM	C.CAPACITOR CH 16V 2.2U	1	
C747	ECEV0JA470	E.CAPACITOR 6.3V 47U	1	
C748	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C750	ECST1AX106Z	T.CAPACITOR CH 10V 10U	1	
C751	ECKF1H103ZF	C.CAPACITOR 50V 0.01U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
D301	MA110	DIODE	1	<R>
D302	MA728	DIODE	1	<R>
D701	MA110	DIODE	1	<R>
FP301	VJS2958B017	CONNECTOR (FEMALE) 17P	1	
FP701	VJS2959B024	CONNECTOR (FEMALE) 24P	1	
IC301	MN4791S	IC	1	<R>
IC302,03	ZA4030	IC	2	<R>
IC304	MN6733	IC	1	<R>
IC305	SC7S04F	IC	1	
IC306	MN6732	IC	1	<R>
IC307	MN655431SH	IC	1	<R>
IC308	MN73512XWAS	IC	1	<R>
IC309	MN1882010V6R	IC	1	<R>
IC310	AK6420HF	IC	1	<R>
IC311	MN13821-Y	IC	1	<R>
IC312	MN1882010V6T	IC	1	<R>
IC315	MN657011H	IC	1	<R>
IC316	MN76039VSU	IC	1	<R>
IC317	AN2040SB	IC	1	<R>
IC318	SC7S08F	IC	1	
IC319,20	TC7S32F	IC	2	<R>
IC330	MB88346BPF	IC	1	
IC701	MN12821Q	IC	1	<R>
IC702	MN6782M5C	IC	1	<R>
IC703	AN2585FAP	IC	1	<R>
IC704	LM358DB	IC	1	<R>
IC705	LM324DB	IC	1	<R>
IC706	AN6663S	IC	1	<R>
IC707	AN6545SP	IC	1	<R>
IC708	TB6504F	IC	1	<R>
IC709	SC7S08F	IC	1	
L301	ELJPC6R8KF	COIL 6.8UH	1	
L302-04	VLQ0426J101	COIL 100UH	3	
L305	ELJFC150KB	COIL	1	
L306-11	ELJPC6R8KF	COIL 6.8UH	6	
L312	VLQ0291	COIL	1	
L313,14	ELJPC6R8KF	COIL 6.8UH	2	
L315	VLQ0291	COIL	1	
L316,17	ELJPC6R8KF	COIL 6.8UH	2	
L320	VLQ0426J330	COIL 33UH	1	
L322	VLQ0426J5R6	COIL 5.6UH	1	
L324	VLQ0584	COIL	1	
L325,26	VLP0140	COIL	2	
L327	VLQ0584	COIL	1	
L328	VLP0140	COIL	1	
L702	ELJPA101KB	COIL 100UH	1	
L703	ELJFC150KB	COIL	1	
L704	ELJFA150KF	COIL 15UH	1	
L705	ELJPA150KB	COIL 15UH	1	
P305	VJP3172B005	CONNECTOR (MALE) 5P	1	
P701	VJP3172B003	CONNECTOR (MALE) 3P	1	
P701	VJS3172B003	CONNECTOR (FEMALE) 3P	1	
P4302	VJS3172B003	CONNECTOR (FEMALE) 3P	1	
Q305	2SC4176	TRANSISTOR	1	<R>
Q701	2SD1819	TRANSISTOR	1	<R>
Q702	2SD2210	TRANSISTOR	1	<R>
QR301	UN5213	TRANSISTOR-RESISTOR	1	<R>

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
QR701,02	UN5211	TRANSISTOR-RESISTOR	2	<R>
QR703	UN5213	TRANSISTOR-RESISTOR	1	<R>
R301	ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
R302,03	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	2	
R304	ERJ3GEYJ271	M.RESISTOR CH 1/16W 270	1	
R305,06	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	2	
R307	ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R308,09	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	2	
R310	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R311	ERJ3GEYJ560	M.RESISTOR CH 1/16W 56	1	
R313	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R314	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R315-17	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	3	
R318	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R319	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R320	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R321	ERJ3GEYJ680	M.RESISTOR CH 1/16W 68	1	
R322	ERJ3GEYJ121	M.RESISTOR CH 1/16W 120	1	
R323-26	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	4	
R328	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R331-33	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	3	
R335	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R336	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R337	ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R338,39	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	2	
R340	ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R341	ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	1	
R342,43	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R344-47	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	4	
R348-50	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	3	
R351,52	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R353-55	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	3	
R356	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R357-63	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	7	
R364	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R365-71	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	7	
R373-81	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	9	
R382,83	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R384	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R387-89	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	3	
R390,91	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R392	ERJ3GEYJ122	M.RESISTOR CH 1/16W 1.2K	1	
R393	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R394	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R396,97	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R398	ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	1	
R399-02	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	4	
R405-21	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	17	
R423	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R424	ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R425	ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
R426-49	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	24	
R450,51	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	2	
R452-58	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	7	
R460-62	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	3	
R464	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R465,66	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	2	
R467	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R468-89	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	22	
R491	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R493	ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R494,95	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R499	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R500	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R501	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R502	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R503	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R504	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R505	ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R701	ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
R702	ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
R703	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R704,05	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	2	
R706	ERJ3GEYG562	M.RESISTOR CH 1/16W 5.6K	1	
R707	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R708	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R710	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R711	ERJ3GEYG103	M.RESISTOR CH 1/16W 10K	1	
R712	ERJ3GEYG303	M.RESISTOR CH 1/16W 30K	1	
R713	ERJ3GEYJ124	M.RESISTOR CH 1/16W 120K	1	
R714	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R715	ERJ3GEYJ823	M.RESISTOR CH 1/16W 82K	1	
R716	ERJ3GEYJ334	M.RESISTOR CH 1/16W 330K	1	
R717,18	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R719	ERJ3GEYJ154	M.RESISTOR CH 1/16W 150K	1	
R720	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R721	ERJ3GEYJ225	M.RESISTOR CH 1/16W 2.2M	1	
R722	ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R723	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R724	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R725	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R726	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R727	ERJ3GEYJ123	M.RESISTOR CH 1/16W 12K	1	
R728	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R729	ERJ3GEYJ123	M.RESISTOR CH 1/16W 12K	1	
R730	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R731	ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	1	
R732-34	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	3	
R735	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R736	ERJ3GEYJ823	M.RESISTOR CH 1/16W 82K	1	
R738	ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R739	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R740	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	7
R741,42	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R743	ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
R744	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R745	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R746	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R747,48	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	2	
R749	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R750	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R751	ERJ3GEYJ4R7	M.RESISTOR CH 1/16W 4.7	1	
R752	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R753	ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R754	ERJ3GEYJ4R7	M.RESISTOR CH 1/16W 4.7	1	
R755	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R756	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R757	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R758	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R759,60	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	2	
R761	ERJ8GEYJ680	M.RESISTOR CH 1/8W 68	1	
R762-64	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	3	
TH701	VRT0032K152	THERMISTOR	1	
VR701	EVM7JGA00B54	V.RESISTOR 50K	1	
X301,02	EF0V8004B0A	CRYSTAL OSCILLATOR	2	<R>
X701	EF0V6754B0A	CRYSTAL OSCIILATOR	1	<R>
X702	EF0V8004B0A	CRYSTAL OSCILLATOR	1	<R>
		MISCELLANEOUS		
	VSC3637	SHIELD COVER (A)	1	
	VSC3638	SHIELD COVER (B)	1	
	VEE7791	MIC B CONNECTION CABLE	1	
	VMZ2077	BARRIER	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
	VEK5865	P.C.BOARD W/COMPONENT		
		CHARA/GENE		
P1402	VJJ0163	CONNECTOR	1	
P3001	VJS3172B005	CONNECTOR (FEMALE) 5P	1	
		MISCELLANEOUS		
	VJJ0163	EVF JACK	1	
	VEE7793	CONNECTION CABLE	1	(P3001-JP1401)
	VEP20437A	P.C.BOARD W/COMPONENT		
		CAMERA OPERATION (A)		
	VEP20438B	P.C.BOARD W/COMPONENT		ON VEP20437A
		CAMERA OPERATION (B)		
FP6701	VJS2140	CONNECTOR (FEMALE)	1	
P6007	VJS3172B006	CONNECTOR (FEMALE) 6P	1	
P6701	VJP3331B006	CONNECTOR (MALE) 6P	1	
P6701	VJS3172B006	CONNECTOR (FEMALE) 6P	1	
SW6701-06	EVQ21804B	SWITCH	6	<R>
SW6707	VSS0126	SWITCH	1	<R>
SW6708	EVQ21804B	SWITCH	1	<R>
SW6710,11	EVQ21804B	SWITCH	2	<R>
SW6713	EVQ21804B	SWITCH	1	<R>
SW6714	VSS0127	SWITCH	1	<R>
SW6715	VSS0126	SWITCH	1	<R>
SW6716,17	EVQ21804B	SWITCH	2	<R>
SW6719	EVQ21804B	SWITCH	1	<R>
SW6722-24	EVQ21804B	SWITCH	3	<R>
		MISCELLANEOUS		
	VWJ04C0035AA	FLAT CABLE	1	(CAME OPE A
				- CAME OPE B)
	VWJ0638	FLEXIBLE CABLE	1	(FP6701-P6007)
	VEE7784	CONNECTION CABLE	1	(P6701-P6007)
	VEP06817A	P.C.BOARD W/COMPONENT		
		VTR OPERATION (A)		
	VEP06847B	P.C.BOARD W/COMPONENT		ON VEP06817A
		VTR OPERATION (B)		
D6501-06	MA165TA5VT	DIODE	6	<R>
D6507	BR3668S	DIODE	1	<R>
D6508	MA165TA5VT	DIODE	1	<R>
D6510-16	MA165TA5VT	DIODE	7	<R>
FP6501	VJS2135	CONNECTOR (FEMALE)	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
SW6501-07	EVQ21504K	SWITCH	7	<R>
SW6508,09	EVQQSB04B	SWITCH	2	<R>
SW6510	VST0098	SWITCH	1	<R>
SW6511	ESD11V120	SLIDE SWITCH	1	<R>
SW6512	EVQ21504K	SWITCH	1	<R>
SW6514,15	EVQQSB04B	SWITCH	2	<R>
SW6516	EVQ7QF02K	SWITCH	1	<R>
SW6517	ESD100121AQ	SWITCH	1	<R>
		MISCELLANEOUS		
	VWJ06C0040AA	FLAT CABLE	1	(P6501-VTR OPE (B))
	VWJ0610	FLEXIBLE CABLE	1	(FP6501-FP6001)
	VEP22118A	P.C.BOARD W/COMPONENT		
		CCD		
B291	VJS2961C012	CONNECTOR (FEMALE) 12P	1	
C292	ECST1VX225Z	T.CAPACITOR 35V 2.2U	1	
C293,94	ECUV1E473ZFN	C.CAPACITOR 25V 0.047U	2	
C295	ECUV1E104ZFN	C.CAPACITOR 25V 0.1U	1	
D291	MA153	DIODE	1	<R>
Q291	2SC2295	TRANSISTOR	1	<R>
R291	ERJ6GEYF560	M.RESISTOR 56K	1	
R292	ERJ6GEYF472	M.RESISTOR 4.7K	1	
		MISCELLANEOUS		
	VJB22118	CCD FLEXIBLE CARD	1	
	VEP03946E	P.C.BOARD W/COMPONENT		
		AV JACK (A)		
C1501	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C1503	ECKF1H102ZF	C.CAPACITOR 50V 1000P	1	
D1501,02	MA153	DIODE	2	<R>
FP1501	VJS2139	CONNECTOR (FEMALE)	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
L1503,04		VLQ0555	COIL	2	
P1501		VJP1244T	CONNECTOR (MALE) 4P	1	
R1504		ERJ3GEYJ123	M.RESISTOR CH 1/16W 12K	1	
SW1501		VSS0187	SWITCH	1	<R>
SW1502		VSS0186	SWITCH	1	<R>
			MISCELLANEOUS		
		VEJ1353	PLATE	1	
		VGU3435	SWITCH KNOB	2	
		VEP03988A	P.C.BOARD W/COMPONENT		
			AV JACK (B)		
D1603		31DQ04FC6	DIODE	1	<R>
D1605		MA715	DIODE	1	<R>
F1601		VSF0058	FUSE	1	
L1601,02		VLP0113	COIL	2	
P1001		VJS1229T	CONNECTOR (FEMALE)	1	
P1601		VJP3318A006	CONNECTOR (MALE) 6P	1	
P1601		VJS3172B006	CONNECTOR (FEMALE) 6P	1	
P1602		VJP1231T	CONNECTOR (MALE) 4P	1	
P1604		VJP1229R	CONNECTOR (MALE) 2P	1	
P6008		VJS3172B006	CONNECTOR (FEMALE) 6P	1	
PJ1605		VJP1253	CONNECTOR (MALE) 2P	1	
R1607		ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	1	
Z1601		VL2020/1HF	BATTERY	1	
			MISCELLANEOUS		
		VEE8184	MECHA CHASSIS EARTH CABLE	1	
		VEE7788	POWER JACK (B) CABLE	1	
		VEE7787	POWER JACK (A) CABLE	1	
		VEK7280	P.C.BOARD W/COMPONENT		
			RT-FPC U		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			MISCELLANEOUS		
		VJF0964	RT CONNECTOR	1	
		VES0689	P.C.BOARD W/COMPONENT		
			MECHA CONNECTION		
P1401		VJP3318A008	CONNECTOR	1	
P1402		VJP1229R	CONNECTOR	1	
Q1401		ON2170-R	PHOTO SENSOR	1	
			MISCELLANEOUS		
		VMX1280	SENSOR SPACER	1	
		VSS0193	MODE SWITCH	1	
		VEE2015	LEAD WIRE	1	(P1402-P6009)
		VEK6035	P.C.BOARD W/COMPONENT		
			PHOTO HOLDER (L)		
P6006		VJS3172B003	CONNECTOR (FEMALE) 3P	1	
			MISCELLANEOUS		
		PN158NVNC	PHOTO TRANSISTOR	1	
		VEE7800	CABLE	1	
		VMD0607	PHOTO HOLDER	1	
		VSH0026	SWITCH	1	
		VEK6098	P.C.BOARD W/COMPONENT		
			PHOTO HOLDER (R)		
P6001		VJS3172B004	CONNECTOR	1	
			MISCELLANEOUS		
		PN158NV	PHOTO TRANSISTOR	1	
		VEE7796	CABLE	1	
		VMD0606	PHOTO HOLDER	1	
		VSQ0808	DEW DETECTOR	1	
		VES0690	DETECTION SWITCH	1	

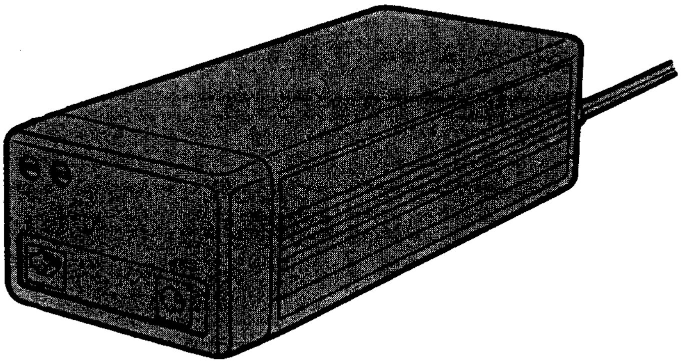
Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VEK5868	FE HEAD C.B.A.		(RTL)
C1901		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C1902		VCYD1E103MR	.CAPACITOR 25V 0.01U	1	
C1903		VCYD1E682KH	.CAPACITOR 25V 6800P	1	
C1904		ECQV1H563JZ	P.CAPACITOR 50V 0.056U	1	
L1901		VLQEL05F221K	COIL 220UH	1	
Q1901		2SC2603AE2F	TRANSISTOR	1	
R1901		ERDS2TJ822	C.RESISTOR 1/4W 8.2K	1	
T1901		VLQ0586	TRANSFORMER	1	
		VEK5942	MANUAL FOCUS SENSOR		
			MISCELLANEOUS		
		ON1004-R	PHOTO COUPLER	1	
		VEK5863	MIC UNIT		
C01		ECEA05KJ471	E.CAPACITOR 470U	1	
C03		ECEA1HKS0R1	E.CAPACITOR 50V 0.1U	1	
C04		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C05		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C06		ECEA0GKS221	E.CAPACITOR 4V 220U	1	
C07		ECEA1HKSR47	E.CAPACITOR 50V 0.47U	1	
C08		ECEA1HKSR47	E.CAPACITOR 50V 0.47U	1	
C09		ECEA1HKS0R1	E.CAPACITOR 50V 0.1U	1	
C10		ECUM1H562KBN	C.CAPACITOR CH 50V 5600P	1	
C11		ECST1VY224Z	T.CAPACITOR 35V 0.22U	1	
C12		ECST1VY224Z	T.CAPACITOR 35V 0.22U	1	
C13		ECUM1H562KBN	C.CAPACITOR CH 50V 5600P	1	
C14		ECEA1HKS0R1	E.CAPACITOR 50V 0.1U	1	
C15		ECUM1E224ZFN	C.CAPACITOR CH 25V 0.22U	1	
C16		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C17		ECUM1E224ZFN	C.CAPACITOR CH 25V 0.22U	1	
C18		ECEA1HKSR22	E.CAPACITOR 50V 0.22U	1	
C19		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C20		ECUM1H681KBN	C.CAPACITOR CH 50V 680P	1	
C21		ECUM1H392KBN	C.CAPACITOR CH 50V 3900P	1	
C22		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C23		ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C24		ECEA0JKS330	E.CAPACITOR 6.3V 33U	1	
C25		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C26		ECEA1HKS010	E.CAPACITOR 50V 1U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C27		ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C28		ECEA0JKS330	E.CAPACITOR 6.3V 33U	1	
C29		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C30		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C31		ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C32		ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C35		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C36		ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C37		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C38		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C42		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C43		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C44		ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
D01		MA3075	DIODE	1	
D02		MA3075	DIODE	1	
D03		MA3075	DIODE	1	
D04		MA3075	DIODE	1	
D05		MA153	DIODE	1	
IC01		AN8358FAP	IC	1	
IC02		ACSA0013BN	IC	1	
IC03		NJM4560MD	IC	1	
JACK1		MOJ-B27-B	JACK	1	
L01		VLQ0163J221	COIL	1	
P01		VJP3331B005	CONNECTOR (MALE) 5P	1	
P02		VJP3331B003	CONNECTOR (MALE) 3P	1	
Q01		2SC2412KLNT	TRANSISTOR	1	
Q02		2SC4081T	TRANSISTOR	1	
Q03		2SC4081T	TRANSISTOR	1	
Q04		2SC2412KLNT	TRANSISTOR	1	
Q05		2SC4081T	TRANSISTOR	1	
Q06		2SC4081T	TRANSISTOR	1	
Q07		2SD601A	TRANSISTOR	1	
Q08		2SD601A	TRANSISTOR	1	
Q09		2SB1218	TRANSISTOR	1	
R03		ERJ6GEYJ272	M.RESISTOR 1/10W 2.7K	1	
R05		ERJ6GEYJ272	M.RESISTOR 1/10W 2.7K	1	
R08		ERJ6GEYJ331	M.RESISTOR 1/10W 330	1	
R09		ERJ6GEYJ331	M.RESISTOR 1/10W 330	1	
R12		ERJ6GEYJ222	M.RESISTOR 1/10W 2.2K	1	
R14		ERJ6GEYJ113	M.RESISTOR 1/10W 11K	1	
R15		ERJ6GEYJ753	M.RESISTOR 1/10W 75K	1	
R16		ERJ6GEYJ333	M.RESISTOR 1/10W 33K	1	
R17		ERJ6GEYJ113	M.RESISTOR 1/10W 11K	1	
R18		ERJ6GEYJ113	M.RESISTOR 1/10W 11K	1	
R19		ERJ6GEYJ101	M.RESISTOR 1/10W 100	1	
R20		VRE0034E104	M.RESISTOR 100K	1	
R21		VRE0034E563	M.RESISTOR 56K	1	
R22		VRE0034E472	M.RESISTOR 4.7K	1	
R23		VRE0034E331	M.RESISTOR 330	1	
R24		VRE0034E332	M.RESISTOR 3.3K	1	
R25		ERJ6GEYJ332	M.RESISTOR 1/10W 3.3K	1	
R26		ERJ6GEYJ333	M.RESISTOR 1/10W 33K	1	
R27		ERJ6GEYJ101	M.RESISTOR 1/10W 100	1	
R28		VRE0034E104	M.RESISTOR 100K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R29		VRE0034E563	M.RESISTOR 56K	1	
R30		VRE0034E472	M.RESISTOR 4.7K	1	
R31		VRE0034E331	M.RESISTOR 330	1	
R32		VRE0034E332	M.RESISTOR 3.3K	1	
R33		ERJ6GEYJ332	M.RESISTOR 1/10W 3.3K	1	
R34		ERJ6GEYJ333	M.RESISTOR 1/10W 33K	1	
R35		ERJ6GEYJ222	M.RESISTOR 1/10W 2.2K	1	
R36		ERJ6GEYJ182	M.RESISTOR 1/10W 1.8K	1	
R37		ERJ6GEYJ182	M.RESISTOR 1/10W 1.8K	1	
R38		ERJ6GEYJ183	M.RESISTOR CH 1/10W 18K	1	
R39		ERJ6GEYJ183	M.RESISTOR CH 1/10W 18K	1	
R40		ERJ6GEYJ103	M.RESISTOR 1/10W 100K	1	
R41		ERJ6GEYJ103	M.RESISTOR 1/10W 100K	1	
R42		ERJ6GEYJ104	M.RESISTOR 1/10W 100K	1	
R43		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R44		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R45		ERJ6GEYJ561	M.RESISTOR 1/10W 560	1	
R46		ERJ6GEYJ561	M.RESISTOR 1/10W 560	1	
R48		ERJ6GEYJ221	M.RESISTOR 1/10W 220	1	
R50		ERJ6GEYJ101	M.RESISTOR 1/10W 100	1	
SW01		ESD11H230-AQ	SWICH	1	
VR01		EVND1AA00B14	V.RESISTOR	1	

AC Adaptor

AG-B6H



SPECIFICATION

ITEM	SPECIFICATION
POWER	Source: 100～240 V AC 50/60 Hz (Automatic Voltage Adjustment)
	Consumption: Approx. 44 W
	Output: DC 12 V, 1.8 A for VHS Movie DC 12 V, 1.5 A for battery pack charge
DIMENSIONS	3-3/16"(W) × 2-3/16"(H) × 7-3/4"(D) 80(W) × 54(H) × 196(D) mm
WEIGHT	Approx. 1.36 lbs. (0.62 kg)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

CAUTION: FOR USE WITH VHS VIDEO MOVIE, MODEL AG-456, AG-455M, AG-455, AG-195M, AG-195.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CONTENTS

1. CONTROLS AND COMPONENTS 1
2. DISASSEMBLY METHOD 1
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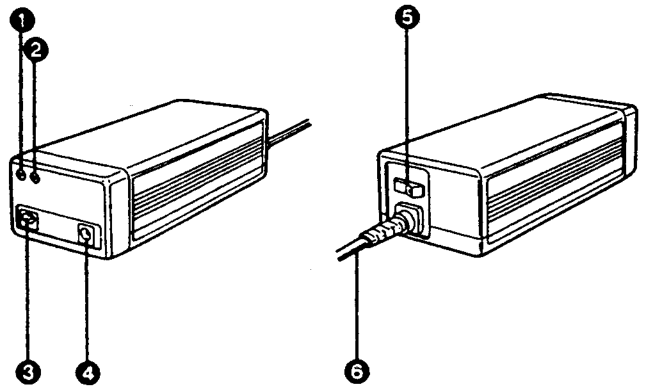
1. CONTROLS AND COMPONENTS



- ❶ Power Indicator
- ❷ Charging Indicator
- ❸ DC Output Socket
- ❹ Battery Pack Charging Socket
- ❺ Power On/Off Switch
- ❻ Mains Lead

2. DISASSEMBLY METHOD

1. REMOVAL OF TOP CASE AND BOTTOM CASE

(1) Unscrew 4 Screws (A) and then remove the Top Case and Bottom Case.

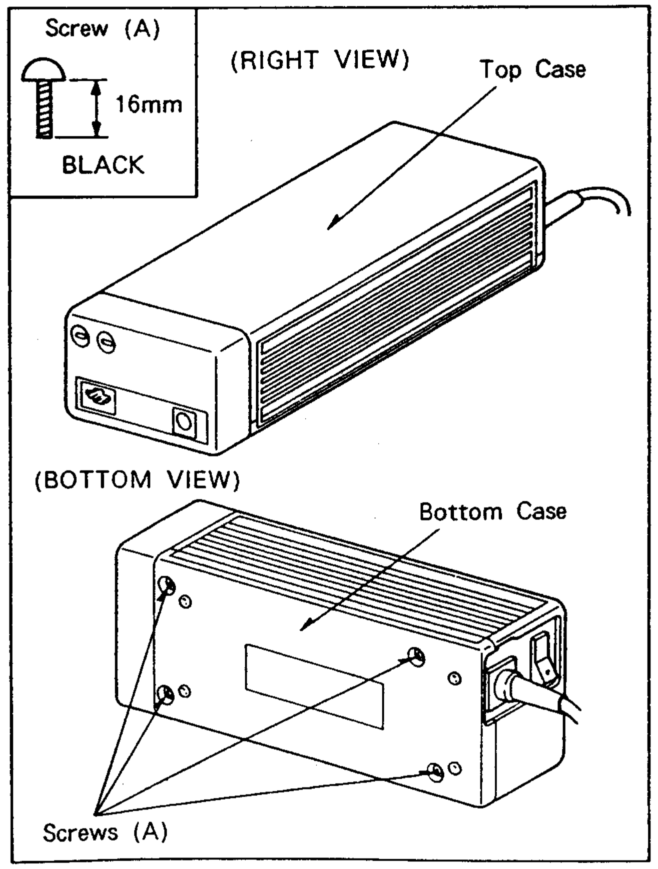

Screw (A)
16mm
BLACK
(RIGHT VIEW)
Top Case
(BOTTOM VIEW)
Bottom Case
Screws (A)

Fig. 1

2. REMOVAL OF FRONT PANEL AND SW C.B.A.

(1) Remove the Front Panel dis connecting the connector P021.
(2) Remove the SW C.B.A. dis connecting the connector P1001.

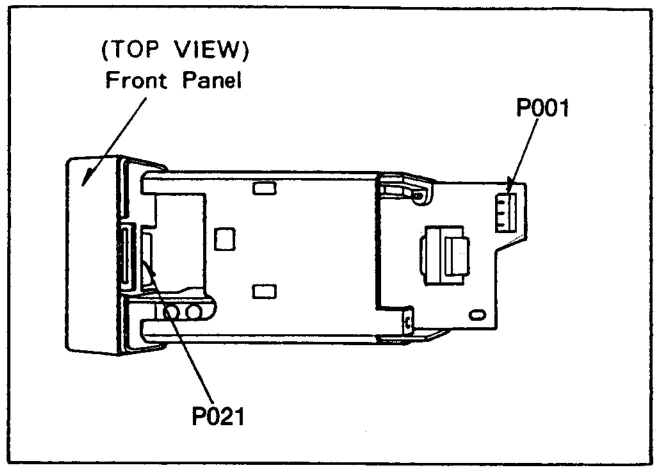

(TOP VIEW)
Front Panel
P001
P021

Fig. 2

3. REMOVAL OF MAIN C.B.A.

(1) Unscrew Screw (B) and then remove the Top Shield.

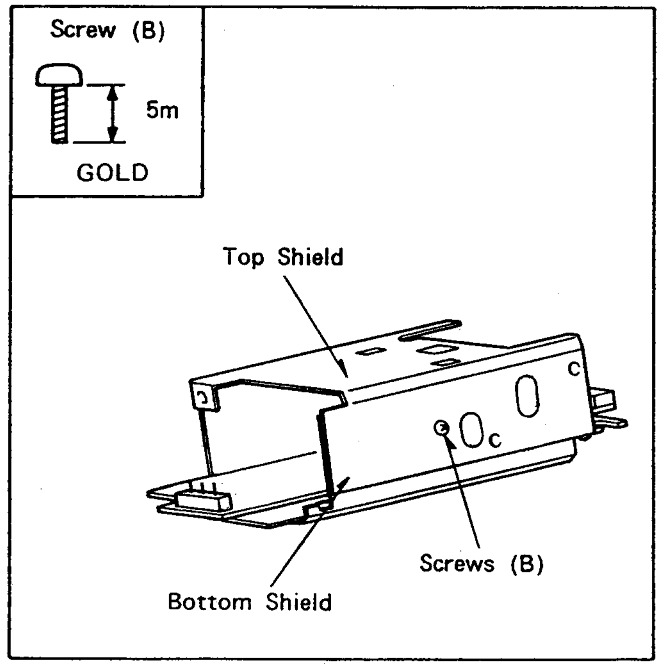

Screw (B)
5m
GOLD
Top Shield
Bottom Shield
Screws (B)

Fig. 3

4. REMOVAL OF FRONT PANEL C.B.A.

(1) Unscrew 2 Screws (D).
(2) While pushing 2 Portions of the DC Output Socket and the Battery Pack Charging Socket, Remove the Front Panel C.B.A.

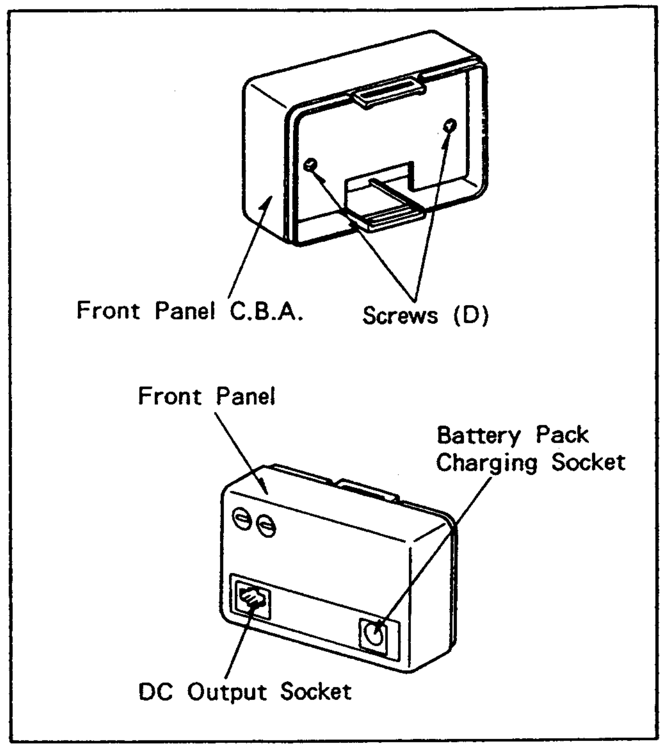

Front Panel C.B.A.
Screws (D)
Front Panel
Battery Pack
Charging Socket
DC Output Socket

Fig. 4

3. ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete electrical adjustment procedures which may be required for electronic circuit of the AC Adaptor.

3-1. TEST EQUIPMENT

To perform the electrical adjustments completely following equipments are required.

1. D.V.M. (Digital Volt Meter)
   Voltage Range : 0.001~50V
2. Oscilloscope
   Voltage Range : 0.005~50V/div
3. DC Ammeter
   Current Range : 0~10A
4. DC Voltmeter
   Voltage Range : 0~20V
5. Plastic Tip Driver
6. Resistor (5ohm Variable 200W)
7. DC Power Supply (5A/20V)

3-2. INITIAL CHARGE CURRENT AND SCHMITT VOLTAGE ADJUSTMENT

TP	ADJ.	MODE	INPUT
BATTERY HOLDER (+) (−)	VR021	CHARGE	
TAPE	**M. EQ.**	**SPEC.**	
	DC AM	A=1.5+−0.1[A] From Low to High	

1. Make the connection as shown below.

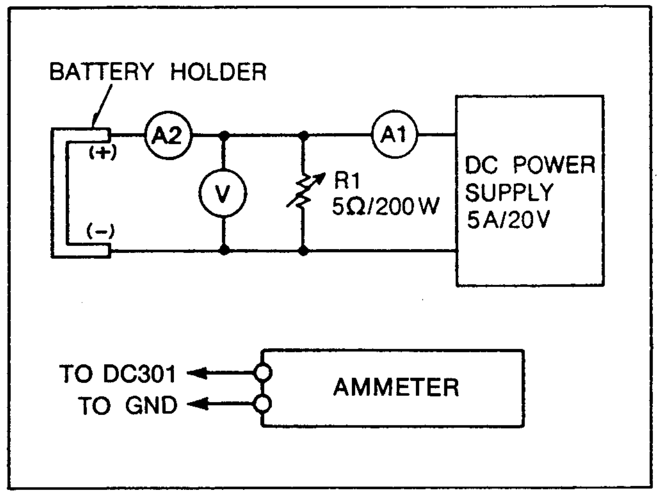

BATTERY HOLDER
(+)
(−)
A2
V
R1
5Ω/200W
A1
DC POWER
SUPPLY
5A/20V
TO DC301
TO GND
AMMETER

Fig. 5

2. Turn the VR021 to fully clockwise.
3. Adjust the output of DC power supply so that the indication of the DC voltmeter becomes 14.0V and adjust R1 so that the indication of the DC ammeter (A1) becomes 3.0 A.
4. Check the DC ammeter (A2), DC ammeter (A2) should be 1.5±0.1A.
5. Adjust the output level of the DC power supply to V1.
6. Adjust the VR021 so that electric current at DC301 is changed from high (approx.1.5A) to low (approx. 0.35A).

$$V1 = ((16.12 - 24 \times t/1000))V \pm 0.1V$$

t = the room temperature

It is also available to use a resistor 5ohm/50W or 2pieces of 10ohm/20W resistors inparallel use or equevalent,instead of variable resitor,5ohm/200W to get specified cxurrent.

4. MAIN C.B.A. (VEP61131A), MODULE C.B.A. (VEP60367A), FRONT C.B.A. (VEP60368A) & SW C.B.A. (VEP60369A)

MAIN C.B.A.	
Transistor	
Q001 Q021	B-4 C-5
Integraged Circuit	
IC021	B-6
Adjustment	
VR021	C-5
Connector	
P003 P021	C-2 C-6

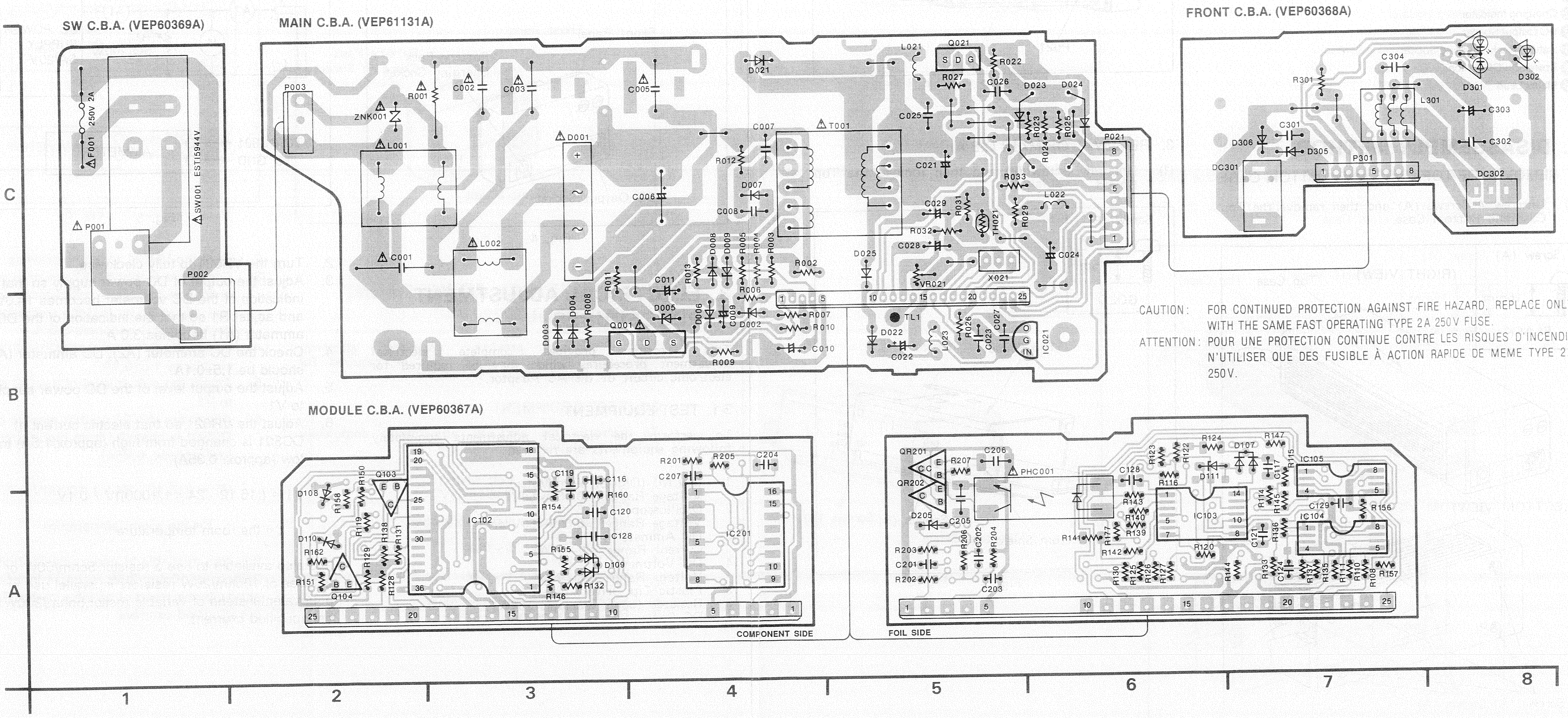
ADDRESS INFORMATION

MODULE C.B.A.	
Transistor	
Q103 Q104 QR201 QR202 PHC001	B-2 A-2 B-5 A-5 A-5
Integraged Circuit	
IC102 IC103 IC104 IC105 IC201	A-3 A-6 A-7 B-7 A-4

ADDRESS INFORMATION

FRONT C.B.A.	
Connector	
P301 DC301 DC302	C-7 C-7 C-8

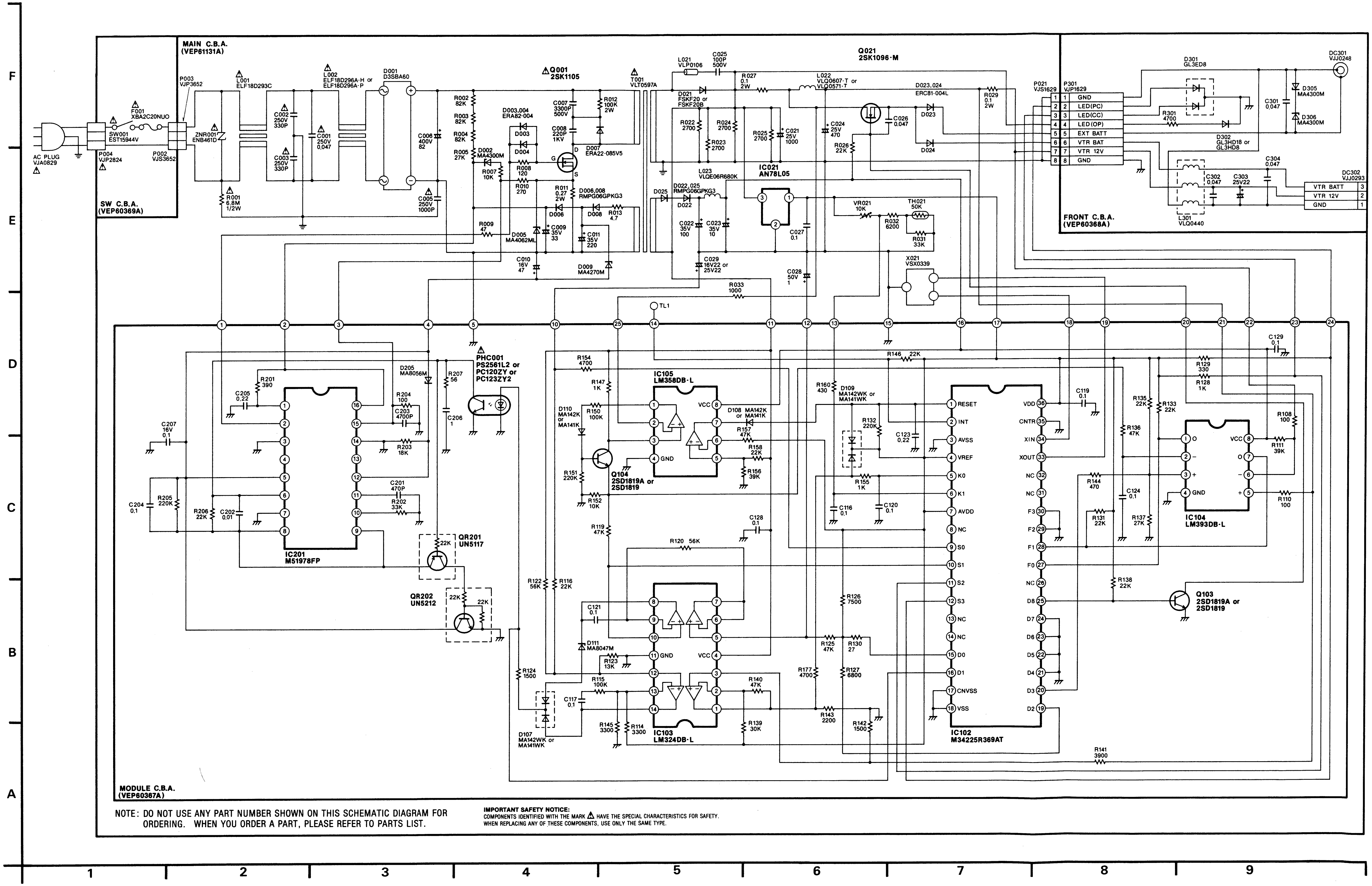
ADDRESS INFORMATION


SW C.B.A. (VEP60369A)
MAIN C.B.A. (VEP61131A)
FRONT C.B.A. (VEP60368A)
MODULE C.B.A. (VEP60367A)
COMPONENT SIDE
FOIL SIDE
C
B
A
1
2
3
4
5
6
7
8
F001 250V 2A
SW001 ESTI5944V
P001
P002
P003
ZNK001
R001
C002
C003
C005
L001
D001
C006
C001
L002
D003
D004
R008
Q001
G D S
D005
D006
C011
R011
R013
D008
D009
R005
R004
R003
C009
D002
R006
R002
R007
R010
R009
C010
C007
C008
R012
D007
D021
T001
L021
Q021
R022
R027
C026
C025
D023
D024
R023
R024
R025
C021
R033
L022
C029
R031
TH021
R029
R032
C028
C024
VR021
X021
D025
TL1
D022
C022
L023
R026
C023
C027
IC021
G IN
P021
R301
C304
D301
D302
L301
C301
D306
D305
C303
C302
DC301
P301
DC302
D108
R158
R150
Q103
R119
R138
R131
D110
R162
R129
R128
R151
Q104
IC102
C119
C116
R160
R154
C120
C128
R155
D109
R146
R132
R201
R205
C204
C207
IC201
QR201
QR202
R207
C206
PHC001
D205
C205
R206
C202
R204
R203
C201
R202
C203
R141
R177
R142
R143
R140
R139
C128
R116
R123
R122
R124
D107
R147
D111
C117
R115
IC105
IC103
R120
R114
R145
C121
R136
C129
R156
IC104
R130
R126
R127
R144
R133
C124
R137
R135
R111
R110
R108
R157

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME FAST OPERATING TYPE 2A 250V FUSE.

ATTENTION: POUR UNE PROTECTION CONTINUE CONTRE LES RISQUES D'INCENDIE N'UTILISER QUE DES FUSIBLE À ACTION RAPIDE DE MEME TYPE 2A 250V.

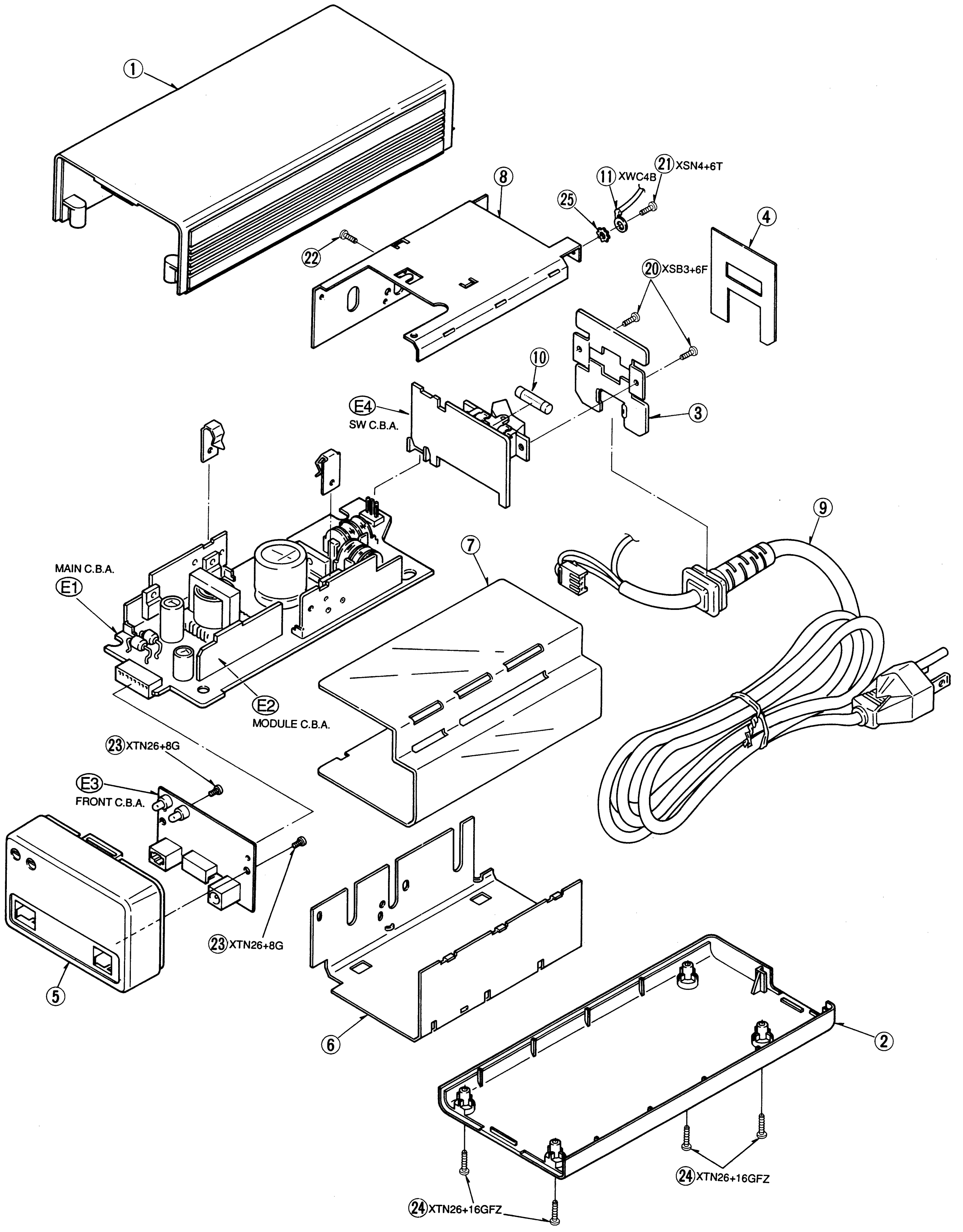
5. AC ADAPTOR SCHEMATIC DIAGRAM


MAIN C.B.A. (VEP61131A)
SW C.B.A. (VEP60369A)
FRONT C.B.A. (VEP60368A)
MODULE C.B.A. (VEP60367A)
AC PLUG VJA0829
SW001 EST15944V
F001 XBA2C20NUO
P003 VJP3652
P004 VJP2824
P002 VJS3652
ZNR001 ENB461D
L001 ELF18D293C
L002 ELF18D296A-H or ELF18D296A-P
C002 250V 330P
C003 250V 330P
C001 250V 0,047
R001 6.8M 1/2W
D001 D3SBA60
C006 400V 82
C005 250V 1000P
R002 82K
R003 82K
R004 82K
R005 27K
D002 MA4300M
R007 10K
D003,004 ERA82-004
R008 120
R010 270
R009 47
D005 MA4062ML
Q001 2SK1105
C007 3300P 500V
C008 220P 1KV
R012 100K 2W
D007 ERA22-085V5
R011 0.27 2W
D006,008 RMPG06GPKG3
R013 4.7
C009 35V 33
C011 35V 220
C010 16V 47
D009 MA4270M
T001 VLT0597A
L021 VLP0106
C025 100P 500V
R027 0.1 2W
D021 FSKF20 or FSKF20B
L022 VLQ0607-T or VLQ0571-T
Q021 2SK1096-M
D023,024 ERC81-004L
R029 0.1 2W
R022 2700
R024 2700
R023 2700
R025 2700
C021 25V 1000
C024 25V 470
C026 0,047
R026 22K
L023 VLQE06R680K
IC021 AN78L05
D022,025 RMPG06GPKG3
C022 35V 100
C023 35V 10
C027 0,1
C029 16V22 or 25V22
C028 50V 1
VR021 10K
TH021 50K
R032 6200
R031 33K
X021 VSX0339
R033 1000
TL1
P021 VJS1629
P301 VJP1629
1 GND
2 LED(PC)
3 LED(CC)
4 LED(OP)
5 EXT BATT
6 VTR BAT
7 VTR 12V
8 GND
D301 GL3ED8
DC301 VJJ0248
D305 MA4300M
D306 MA4300M
C301 0,047
R301 4700
D302 GL3HD18 or GL3HD8
C304 0,047
C302 0,047
C303 25V22
L301 VLQ0440
DC302 VJJ0293
VTR BATT 3
VTR 12V 2
GND 1
PHC001 PS2561L2 or PC120ZY or PC123ZY2
D205 MA8056M
R207 56
C206 1
R201 390
C205 0,22
C207 16V 0.1
R204 100
C203 4700P
R203 18K
C201 470P
R202 33K
C204 0,1
R205 220K
R206 22K
C202 0,01
IC201 M51978FP
QR201 UN5117
QR202 UN5212
R154 4700
R147 1K
D110 MA142K or MA141K
R150 100K
R151 220K
R152 10K
Q104 2SD1819A or 2SD1819
IC105 LM358DB-L
D108 MA142K or MA141K
R157 47K
R158 22K
R156 39K
R119 47K
R120 56K
C128 0.1
R122 56K
R116 22K
C121 0.1
D111 MA8047M
R123 13K
R115 100K
R124 1500
C117 0,1
D107 MA142WK or MA141WK
R145 3300
R114 3300
IC103 LM324DB-L
R140 47K
R139 30K
R160 430
D109 MA142WK or MA141WK
R132 220K
R155 1K
C116 0,1
C120 0,1
C123 0,22
R126 7500
R125 47K
R130 27
R177 4700
R127 6800
R143 2200
R142 1500
R146 22K
C119 0,1
IC102 M34225R369AT
RESET VDD INT CNTR AVSS XIN VREF XOUT K0 NC K1 NC AVDD F3 NC F2 S0 F1 S1 F0 S2 NC S3 D8 NC D7 NC D6 D0 D5 D1 D4 CNVSS D3 VSS D2
C129 0,1
R129 330
R128 1K
R135 22K
R133 22K
R136 47K
R108 100
R111 39K
R144 470
C124 0,1
R131 22K
R137 27K
R110 100
IC104 LM393DB-L
R138 22K
Q103 2SD1819A or 2SD1819
R141 3900
F E D C B A
1 2 3 4 5 6 7 8 9

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

6. EXPLODED VIEWS



7. MECHANICAL REPLACEMENT PARTS LIST

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1(1)	VKM2294	TOP COVER	1	
2(1)	VKM4084	BOTTOM COVER	1	
3(1)	VMP2469	SW ANGLE	1	
4(1)	VGH2273	NAME PLATE	1	
5(1)	VYP3167	FRONT PANEL UNIT	1	
6(1)	VSC4189	BOTTOM SHIELD	1	
7(1)	VMZ2367	BARRIER	1	<!>
8(1)	VSC4178	TOP SHIELD	1	
9(1)	VJA0829	AC POWER CORD	1	<!>
10(1)	XBA2C20NU0	FUSE 2.0A/250V (F001)	1	<!>
11(1)	VJH12	OVAL LUG TERMINAL	1	
20	XSB3+6F	SCREW	2	
21	XSN4+6T	SCREW	1	
22	XTN26+6F	SCREW	1	
23	XTN26+8G	SCREW	2	
24	XTN26+16GFZ	SCREW	4	
25	XWC4B	SAW TOOTH WASHER	1	

8. ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
E1	VEP61131A	P.C.BOARD W/COMPONENT MAIN	1	(RTL)<R><!> INCLUDING THE MODULE (VEP60367A)
E2	VEP60367A	P.C.BOARD W/COMPONENT MODULE	1	(RTL)<R> INCLUDED THE MAIN (VEP61131A)
E3	VEP60368A	P.C.BOARD W/COMPONENT FRONT	1	(RTL)<R>
E4	VEP60369A	P.C.BOARD W/COMPONENT SWITCH	1	(RTL)<R>
	VEP61131A	P.C.BOARD W/COMPONENT MAIN		(RTL)<R><!> INCLUDING THE MODULE (VEP60367A)
	VEP60367A	P.C.BOARD W/COMPONENT MODULE		(RTL)<R> INCLUDED THE MAIN (VEP61131A)
C001	ECQU2A473MV	P.CAPACITOR 100V 0.047U	1	<!>
C002,03	VCC0019	C.CAPACITOR 330P	2	<!>
C005	VCC0022	C.CAPACITOR 1000P	1	<!>
C006	ECEC2GA820C	E.CAPACITOR 400V 82U	1	
C007	ECKD2H332KB	C.CAPACITOR 500V 3300P	1	
C008	ECKD3A221KB	C.CAPACITOR 1000V 220P	1	
C009	ECEA1VGE330	E.CAPACITOR 35V 33U	1	
C010	ECEA1CGE470	E.CAPACITOR 16V 47U	1	
C011	ECEA1VGE221	E.CAPACITOR 35V 220U	1	
C021	ECA1EFQ102	E.CAPACITOR 25V 1000U	1	
C022	ECEA1VGE101	E.CAPACITOR 35V 100U	1	
C023	ECEA1VK100	E.CAPACITOR 35V 10U	1	
C024	ECEA1EGE471	E.CAPACITOR 25V 470U	1	
C025	ECKD2H101KB	C.CAPACITOR 500V 100P	1	
C026	ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
C027	ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C028	ECEA1HGE010	E.CAPACITOR 50V 1U	1	
C029	ECEA1CKG220	E.CAPACITOR 16V 22U	1	
C116	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C117	ECUM1E104KBN	C.CAPACITOR CH 16V 0.1U	1	
C119	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C120	ECUM1C104ZFN	C.CAPACITOR CH 16V 0.1U	1	
C121	ECUM1E104KBN	C.CAPACITOR CH 16V 0.1U	1	
C123	ECUM1C224KBM	C.CAPACITOR CH 16V 0.22U	1	
C124	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C128,29	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	2	
C201	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C202	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C203	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C204	ECUM1C104KBN	C.CAPACITOR CH 16V 0.1U	1	
C205	ECUM1C224KBM	C.CAPACITOR CH 16V 0.22U	1	
C206	ECUM1C105KBM	C.CAPACITOR CH 16V 1U	1	
C207	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
D001	D3SBA60	DIODE	1	<R><!>
D002	MA4300M	DIODE	1	<R>
D003,04	ERA82-004	DIODE	2	<R>
D005	MA4062M	DIODE	1	<R>
D006	RMPG06GPKG3	DIODE	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D007		ERA22-08	DIODE	1	<R>
D008		RMPG06GPKG3	DIODE	1	<R>
D009		MA4270M	DIODE	1	<R>
D021		F5KF20	DIODE	1	<R>
D022		RMPG06GPKG3	DIODE	1	<R>
D023,24		ERC81-004L37	DIODE	2	<R>
D025		RMPG06GPKG3	DIODE	1	<R>
D107		MA142WK	DIODE	1	<R>
D108		MA142K	DIODE	1	<R>
D109		MA142WK	DIODE	1	<R>
D110		MA142K	DIODE	1	<R>
D111		MA8047-M	DIODE	1	<R>
D205		MA8056-M	DIODE	1	<R>
IC021		AN78L05	IC	1	<R>
IC102		M34225R369AT	IC	1	<R>
IC103		LM324DB	IC	1	<R>
IC104		LM393DB	IC	1	<R>
IC105		LM358DB	IC	1	<R>
IC201		M51978FP	IC	1	<R>
L001		ELF18D293C	COIL 29MH	1	<!>
L002		ELF18D296A	COIL	1	<!>
L021		VLP0106	COIL	1	
L022		VLQ0607	COIL	1	
L023		VLQEL06F680K	COIL 68UH	1	
P003		VJP3652	CONNECTOR	1	
P021		VJS1629	CONNECTOR (FEMALE)	1	
PHC001		PC123ZY2	CONNECTOR	1	<!>
Q001		2SK1105	TRANSISTOR	1	<R><!>
Q021		2SK1096-M	TRANSISTOR	1	<R>
Q103,04		2SD1819A	TRANSISTOR	2	<R>
QR201		UN5117	TRANSISTOR-RESISTOR	1	<R>
QR202		UN5212	TRANSISTOR-RESISTOR	1	<R>
R001		ERC12ZGK685	S.RESISTOR 1/2W 6.8M	1	<!>
R002-04		ERDS2TJ823	C.RESISTOR 1/4W 82K	3	
R005		ERDS2TJ273	C.RESISTOR 1/4W 27K	1	
R006		ERDS2TJ563	C.RESISTOR 1/4W 56K	1	
R007		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R008		ERDS2TJ121	C.RESISTOR 1/4W 120	1	
R009		ERDS2TJ470	C.RESISTOR 1/4W 47	1	
R010		ERDS2TJ271	C.RESISTOR 1/4W 270	1	
R011		ERX2SJR27	M.RESISTOR 2W 0.27	1	
R012		ERG2SJ104	M.RESISTOR 2W 100K	1	
R013		ERDS2TJ4R7	C.RESISTOR 1/4W 4.7	1	
R022-25		ERDS2TJ272	C.RESISTOR 1/4W 2.7K	4	
R026		ERDS2TJ223	C.RESISTOR 1/4W 22K	1	
R027		ERX2SZJR10	M.RESISTOR 2W 0.1	1	
R029		ERX2SZJR10	M.RESISTOR 2W 0.1	1	
R031		ERDS2TJ333	C.RESISTOR 1/4W 33K	1	
R032		ERDS2TJ622	C.RESISTOR 1/4W 6.2K	1	
R033		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R108		ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R110		ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R111		ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
R114		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R115		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R116		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R119		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R120		ERJ3GEYG563	M.RESISTOR CH 1/16W 56K	1	
R122		ERJ3GEYG563	M.RESISTOR CH 1/16W 56K	1	
R123		ERJ3GEYJ133	M.RESISTOR CH 1/16W 13K	1	
R124		ERJ6GEYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R125		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R126		ERJ3GEYG752	M.RESISTOR CH 1/16W 7.5K	1	
R127		ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
R128		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R129		ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R130		ERJ3GEYJ270	M.RESISTOR CH 1/16W 27	1	
R131		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R132		ERJ3GEYJ224	M.RESISTOR CH 1/16W 220K	1	
R133		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R135		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R136		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R137		ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	1	
R138		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R139		ERJ3GEYJ303	M.RESISTOR CH 1/16W 30K	1	
R140		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R141		ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R142		ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
R143		ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R144		ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	1	
R145		ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R146		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R147		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R150		ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R151		ERJ3GEYJ224	M.RESISTOR CH 1/16W 220K	1	
R152		ERJ3GEYJ163	M.RESISTOR CH 1/16W 16K	1	
R154		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R155		ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R156		ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
R157		ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R158		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R160		ERJ3GEYJ431	M.RESISTOR CH 1/16W 430	1	
R177		ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R201		ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R202		ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R203		ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
R204		ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R205		ERJ3GEYJ224	M.RESISTOR CH 1/16W 220K	1	
R206		ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R207		ERJ3GEYJ560	M.RESISTOR CH 1/16W 56	1	
T001		VLT0597A	TRANSFORMER	1	<!>
TH021		ERTD2ZHL503	THERMISTOR	1	
VR021		EVN3ACA00B14	V.RESISTOR 10K	1	
X021		VSX0339	CRYSTAL OSCILLATOR	1	<R>
ZNR001		ENB461D-05A	SURGE ABSORBER 460V	1	<!>
			MISCELLNEOUS		
		VSC3378	HEAT SINK	2	
		VMC0661	TR. SPRING	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VEP60368A	P.C.BOARD W/COMPONENT		
			FRONT		
C301,02		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	2	
C303		ECEA1EKS220	E.CAPACITOR 25V 22U	1	
C304		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
D301		GL3ED8	DIODE	1	<R>
D302		GL3HD8	DIODE	1	<R>
D305,06		MA4300M	DIODE	2	<R>
DC301		VJJ0248	DC JACK	1	<R>
DC302		VJJ0293	DC JACK 3P	1	<R>
L301		VLQ0440	COIL	1	
P301		VJP1629	CONNECTOR (MALE)	1	
R301		ERDS2TJ472	C.RESISTOR 1/4W 4.7K	1	
		VEP60369A	P.C.BOARD W/COMPONENT		
			SWITCH		
F001		XBA2C20NU0	FUSE	1	<R><!>
P002		VJS3652	CONNECTOR	1	
P004		VJP2824B003	CONNECTOR	1	<!>
SW001		EST15944	SWITCH	1	<R><!>

! Warning
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advice non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service manual by anyone else could result in serious injury or death.

Order No. VSD9601S202
D9

Service Manual

Supplement

NTSC / PAL Video Product

Subject :Change of Shoulder Strap

Please use this supplement together with the Service Manual as follows :

Model No.	Bulletin No.	Order No.	Effective from
AG-455UP	7	VSD9211M229	--------
AG-195UP	2	VSD9210M226	--------
AG-455MUP	5	VSD9401M240	--------
AG-195MUP	4	VSD9401M239	L5-----
AG-456UP V-19576	1	VSD9505M258	--------
AG-455E	4	VSD9209M624	L5----
AG-455ME	4	VSD9312M631	L5----

Reason for Change
- ☐ The following part(s) has(have) been changed for serviceability improvement.
- ☐ The following part(s) has(have) been changed for productivity improvement.
- ■ The following part(s) has(have) been changed for standardization.
- ☐ The following part(s) has (have) been changed for the safety regulation.
- ☐

Interchangeability Code (I/C)

A	Original or new parts may be used in early or late production set. Use original parts until exhausted, then stock new parts.
B	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts possible then stock new parts.
C	New parts only may be used in early or late production sets.
D	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
E	Others

Part Number

Ref. No.	Original Part No.	New Part No.	Part Name & Descriptions	Pcs	I/C	Remarks
801	VFC1309	VFC2252	SHOULDER STRAP	1	A	

VG2-6924

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Order No. VSD9602S201
D9

Service Manual

Supplement

NTSC / PAL

Video Product

Subject :Change of IC

Please use this supplement together with the Service Manual as follows :

Model No.	Bulletin No.	Order No.	Effective from
AG-455UP	8	VSD9211M229	---------
AG-195UP	3	VSD9210M226	---------
AG-455MUP	6	VSD9401M240	---------
AG-195MUP	5	VSD9401M239	L5-----
AG-456UP ✓19370	2	VSD9505M258	L5-----
AG-455E	5	VSD9312M631	---------
AG-455ME	5	VSD9209M624	L5-----

Board : PROCESS
SENSOR
MAIN

Reason for Change

- ☐ The following part(s) has(have) been changed for serviceability improvement.
- ☐ The following part(s) has(have) been changed for productivity improvement.
- ■ The following part(s) has(have) been changed for standardization.
- ☐ The following part(s) has (have) been changed for the safety regulation.
- ☐

Interchangeability Code (I/C)

A	Original or new parts may be used in early or late production set. Use original parts until exhausted, then stock new parts.
B	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts possible then stock new parts.
C	New parts only may be used in early or late production sets.
D	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
E	Others

Part Number

Ref. No.	Original Part No.	New Part No.	Part Name & Descriptions	Pcs	I/C	Remarks
IC704	LM358DB-L	NJM2904V	IC	1	A	
IC205	LM358DB-L	NJM2904V	IC	1	A	
IC1102	LM393DB-L	NJM2903V	IC	1	A	

VG2-6894

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